

# **Tracking the Deployment of the Integrated Metropolitan ITS Infrastructure in Orlando**

## **FY99 Results**

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## Part 1 - Background and Purpose

In January 1996, Secretary Peña set a goal of deploying the integrated metropolitan Intelligent Transportation System (ITS) infrastructure in 75<sup>1</sup> of the nation's largest metropolitan areas by 2006:

*"I'm setting a national goal: to build an intelligent transportation infrastructure across the United States to save time and lives, and improve the quality of life for Americans. I believe that what we do, we must measure . . . Let us set a very tangible target that will focus our attention . . . I want 75 of our largest metropolitan areas outfitted with a complete intelligent transportation infrastructure in 10 years."*<sup>2</sup>

-- Secretary Peña, 1996

In 1997, the U.S. Department of Transportation initiated an effort to track progress toward fulfillment of this goal by conducting a survey of deployment in the nation's largest metropolitan areas. Traditionally, the product of a transportation infrastructure investment consists of a fixed asset such as a highway, bridge, or public transportation vehicle developed, constructed, or purchased by a single agency. Tracking the level of deployment for such traditional fixed assets can be accomplished by simply counting the number of such assets deployed. Measuring the deployment of the metropolitan ITS infrastructure is more complex because it consists of a set of systems, often deployed by multiple agencies, and integrated through a combination of complex institutional and technical arrangements. In brief, it is often difficult to simply count the number of systems deployed without first devising a measurement approach that captures the essential features of such systems in a consistent fashion across many deployment environments.

In order to track progress toward fulfillment of the Secretary's goal for deployment, the U.S. Department of Transportation ITS Joint Program Office developed the metropolitan ITS deployment tracking methodology. This methodology tracks deployment of the nine components that make up the Metropolitan ITS infrastructure: Freeway Management; Incident Management; Arterial Management; Emergency Management; Transit Management; Electronic Toll Collection; Electronic Fare Payment; Highway-Rail Intersections; and Regional Multimodal Traveler Information. Through a set of indicators tied to the major functions of each component, the level of deployment is tracked for the nation's largest metropolitan areas. In addition, the integration links between agencies operating the infrastructure are also tracked. The details of

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<sup>1</sup> Since Secretary Peña's speech, the number of metropolitan areas that DOT will measure has been increased from 75 to 78. However, to maintain reporting consistency across the 10-year goal period, this report considers only the original 75 metropolitan areas.

<sup>2</sup> Excerpt of a speech delivered by Secretary of Transportation Peña at the Transportation Research Board in Washington, DC on January 10, 1996.

the methodology are explained elsewhere.<sup>3</sup>

During the summer and fall of 1999, the U.S. DOT undertook a new data collection effort for the purpose of examining ITS deployment progress in the nation's largest metropolitan areas. The Orlando metropolitan area was among the areas surveyed in 1997 and again in 1999. This report presents the results of the 1999 survey efforts and compares the results of the 1997 survey against those observed in 1999. The overall response rate for the surveys administered in the Orlando region was 100% in 1997 and 83% in 1999.

Part 2 contains a summary of the 1999 survey results, and Part 3 provides a comparison of 1999 survey results and the 1997 survey results.

The report also contains a set of appendices containing a map of the survey area, the list of local contacts surveyed along with a status of their response to the survey and a summary of the data collected from the surveys.

Agencies are encouraged to review the data presented in this report for completeness and accuracy and to direct any comments or corrections to the data provided to the contacts listed below:

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<sup>3</sup> Additional Resources: "Measuring ITS Deployment and Integration" (Electronic Document Number: 4372). U.S. Department of Transportation, Joint Program Office for Intelligent Transportation Systems, 400 Seventh St., SW (HVH-1), Washington, DC 20590, Phone: 202-366-9536, Fax: 202-366-3302, Web: <http://www.its.dot.gov>.

## **Part 2 - Summary 1999 Survey Results**

Deployment indicators have been developed for two broad areas of interest: (1) the individual components, including their basic functions and characteristics and (2) integration of components, including how these components work together to provide coordinated regional service. As mentioned earlier, these indicators are expressed as percentages of the possible deployment opportunity and not necessarily what should be deployed based on local needs. Requirements for deployment and integration between each component will vary based on local conditions and cannot be assigned without extensive coordination with individual metropolitan areas.

The following two figures portray the surrogate indicators for each of the nine components in Orlando and the same indicators at the national level. These are judged to be the single best representative of a component and are being used as summary indicator for component. The summary indicators are expressed as a percentage; however, because deployment goals have yet to be established, these indicators should not be read as a comparison of what is deployed versus eventual deployment goals. Instead, they only reflect what is deployed compared to full market saturation (i.e., opportunity for deployment).

Each component indicator was selected to reflect a critical function of the individual components. For example, in the case of Freeway Management, three basic functions were defined: surveillance, traffic control, and information display. The three indicators developed to reflect these functions are: percentage of freeway centerline miles under electronic surveillance (surveillance function), percentage of freeway entrance ramps managed by ramp meters (traffic control function), and percentage of freeway centerline miles covered by permanent VMS, HAR, or in-vehicle signing (information display function). The indicators are surrogates that do not necessarily reflect the full breadth of metropolitan ITS deployment activity.

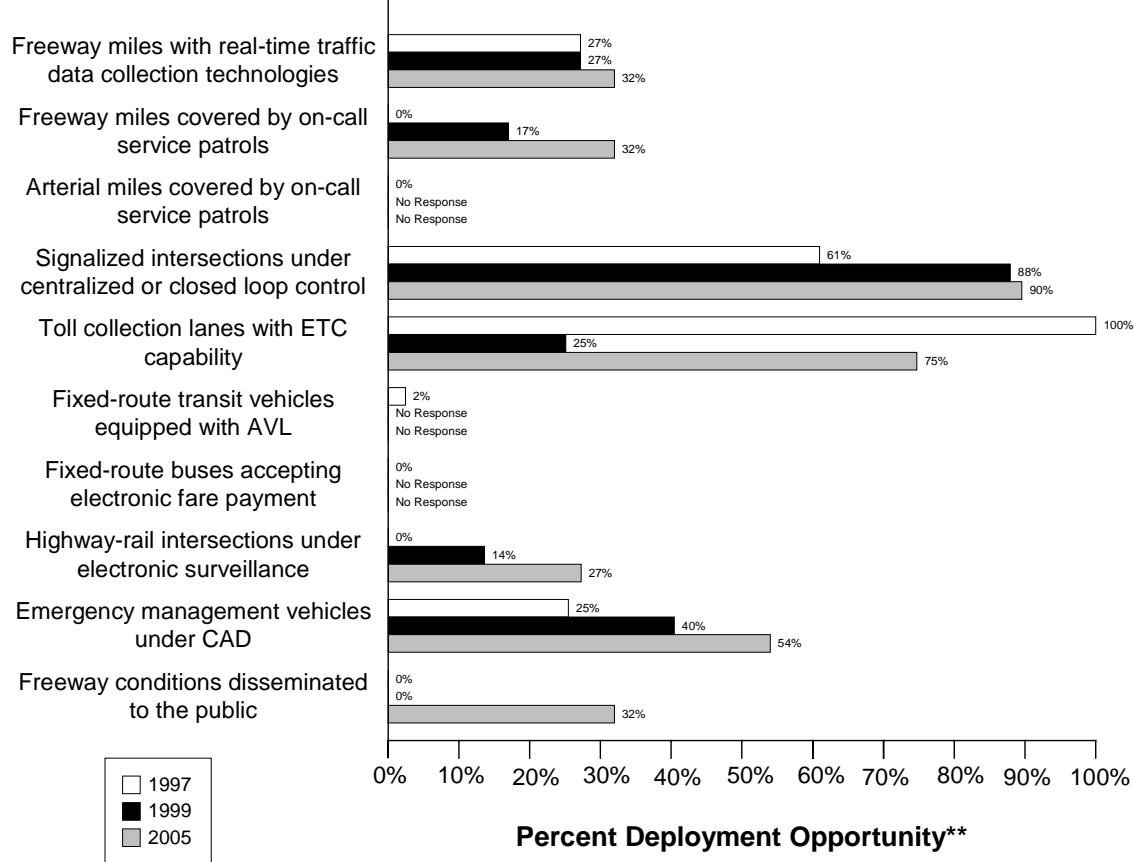
A critical aspect of ITS that provides much of its capability is the integration of individual components to form a unified regional traffic control system. Individual ITS components routinely collect information that is used for purposes internal to that component. For example, the Arterial Management component monitors arterial conditions to revise signal timing and to convey these conditions to travelers through such technologies as variable message signs and highway advisory radio. Other ITS components can make use of this information in formulating their control strategies. For example, Transit Management may alter routes and schedules based on real-time information on arterial traffic conditions, and Freeway Management may alter ramp metering or diversion recommendations based on the same information.

As with the component indicators, definitions for inter- and intra-component integration were developed for each component, and indicators, derived from these definitions, were produced for each component. A total of 34 individual integration indicators was specified and is portrayed in the third figure which follows. Each integration indicator has been assigned a number and an origin/destination path from one ITS infrastructure component to another. For example, the

integration of information from the Freeway Management component to the Regional Multimodal Traveler Information component is identified by the number “10.”

Data as of 5/1/00

## Orlando Summary Indicators\*

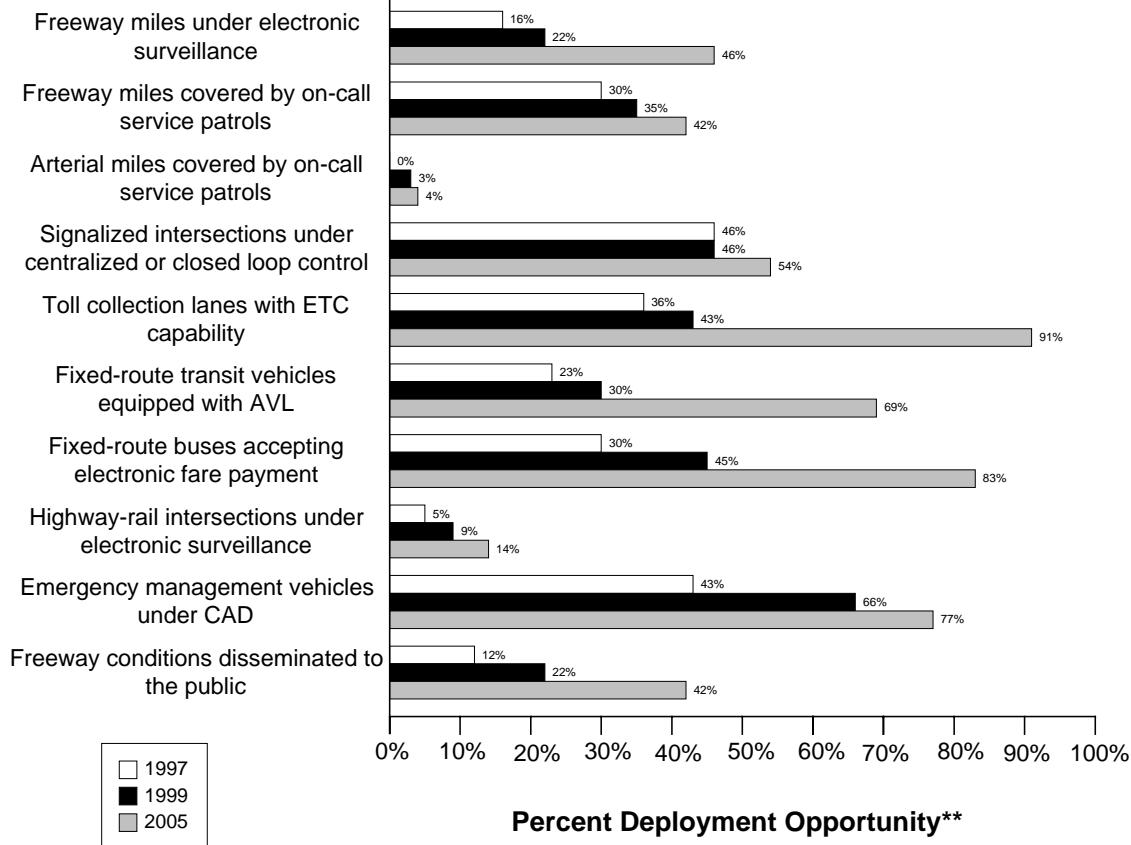


\* Indicators are single surrogates that do not necessarily reflect the full breadth of ITS deployment activity.

\*\* Deployment opportunity reflects potential totals that do not necessarily reflect actual need.

Data as of 5/1/00

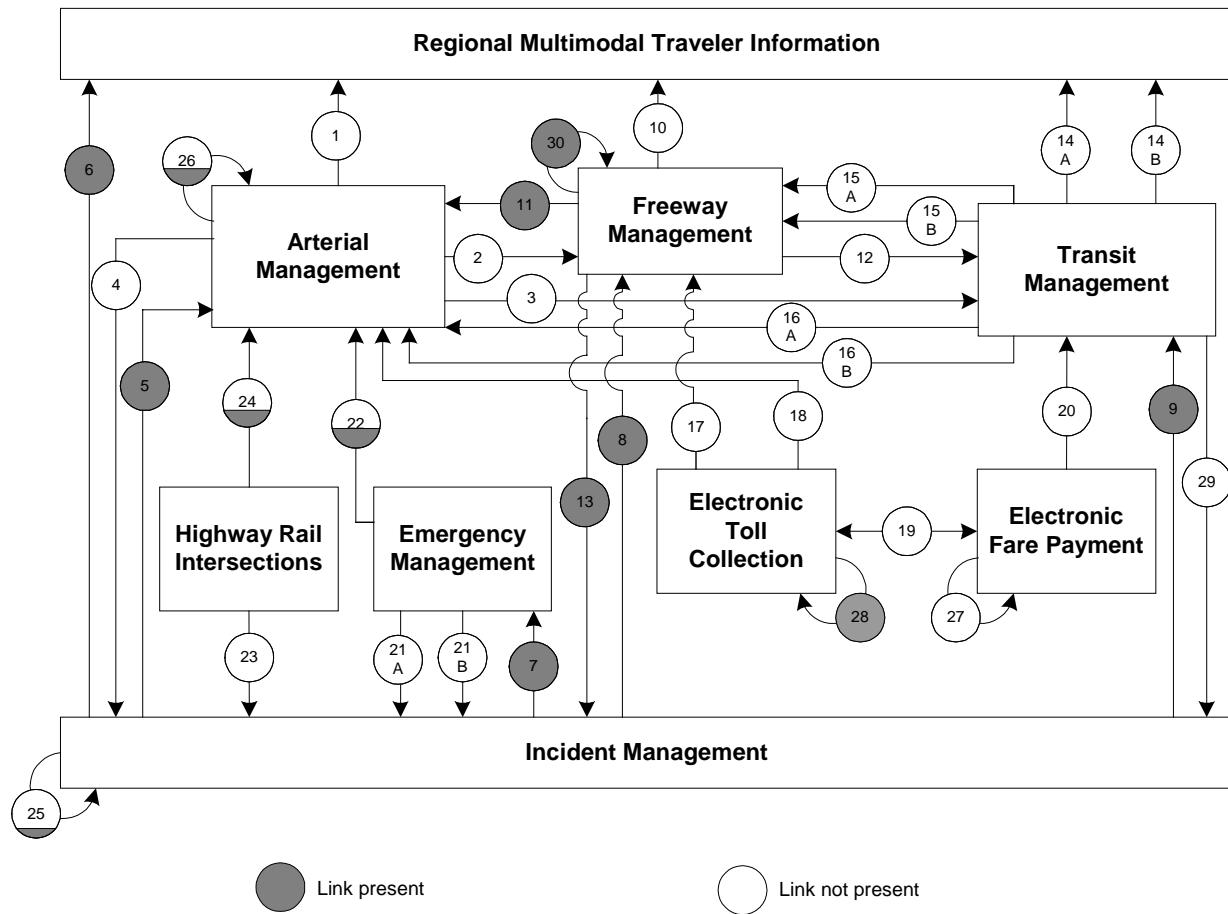
## National Summary Indicators\*



\* Indicators are single surrogates that do not necessarily reflect the full breadth of ITS deployment activity

\*\* Deployment opportunity reflects potential totals that do not necessarily reflect actual need

## Orlando Integration Links



Link	Description	Link	Description
1	Arterial Management to Regional Multimodal Traveler Information	2	Arterial Management to Freeway Management
3	Arterial Management to Transit Management	4	Arterial Management to Incident Management
5	Incident Management to Arterial Management	6	Incident Management to Regional Multimodal Traveler Information
7	Incident Management to Emergency Management.	8	Incident Management to Freeway Management
9	Incident Management to Transit Management	10	Freeway Management to Regional Multimodal Traveler Information
11	Freeway Management to Arterial Management	12	Freeway Management to Transit Management

<b>Link</b>	<b>Description</b>	<b>Link</b>	<b>Description</b>
13	Freeway Management to Incident Management	14a 14b	Transit Management to Regional Multimodal Traveler Information (static route information)
			Transit Management to Regional Multimodal Traveler Information (schedule adherence information)
15a	Transit Management to Freeway Management	16a 16b	Transit Management to Arterial Management
15b	Transit Management to Freeway Management (transit vehicle probes)		Transit Management to Arterial Management (transit vehicle probes)
17	Electronic Toll Collection to Freeway Management (ETC equipped probes)	18	Electronic Toll Collection to Arterial Management (ETC equipped probes)
19	Electronic Fare Payment and Electronic Toll Collection		Electronic Fare Payment to Transit Management
21a	Emergency Management to Incident Management (incident notification)	22	Emergency Management to Arterial Management
21b	Emergency Management to Incident Management (incident clearance)		
23	Highway-rail intersections to Incident Management (crossing status)	24	Highway-rail intersections to Arterial Management (crossing status)
25	Incident Management intra component		Arterial Management intra component
27	Electronic Fare Payment intra component.	28	Electronic Toll Collection intra component
29	Transit Management to Incident Management (incident reporting)		Freeway Management intra component

### Part 3 - Detailed 1999 Survey Results

The following figures and tables summarize the complete set of component and integration indicators developed for the Orlando metropolitan area. The figures summarizing the component indicators consist of a bar chart portraying the deployment levels for 1997, 1999, and 2005 accompanied by detailed tables of the data used to calculate each component indicator value (*Num* stands for numerator and *Den* stands for denominator; blank space indicates that no response was received.)

**Example:** Calculating Component Indicators for Freeway Management

Consider a metropolitan area with 100 miles of freeway and 25 freeway entrance ramps. The area has no ramp meters, 10 freeway miles for which traffic data are collected electronically, and 5 freeway miles, which are covered by highway advisory radio.

The component indicator for electronic surveillance is calculated as (10/100) or 10%.

The component indicator for ramp meter control is calculated as (0/25) or 0%.

The component indicator for HAR coverage is calculated as (5/100) or 5%.

The summary indicator for the metropolitan area is calculated as  
 $(10\%+0\%+5\%)/3 = 5\%$ .

The figures summarizing the integration indicators consist of a diagram for each of the nine metropolitan ITS components portraying the integration level for 1999 (*italic*) and 2005 (**bold**), accompanied by tables providing an explanation of the data and calculations performed to develop each integration indicator value for 1999 and 2005. Each diagram portrays the proportion of agencies providing information to a component (e.g., the flow of incident information from Incident Management to Freeway Management) and the proportion of agencies providing information from one component to other components (e.g., the flow of freeway travel condition information from Freeway Management to Arterial Management).

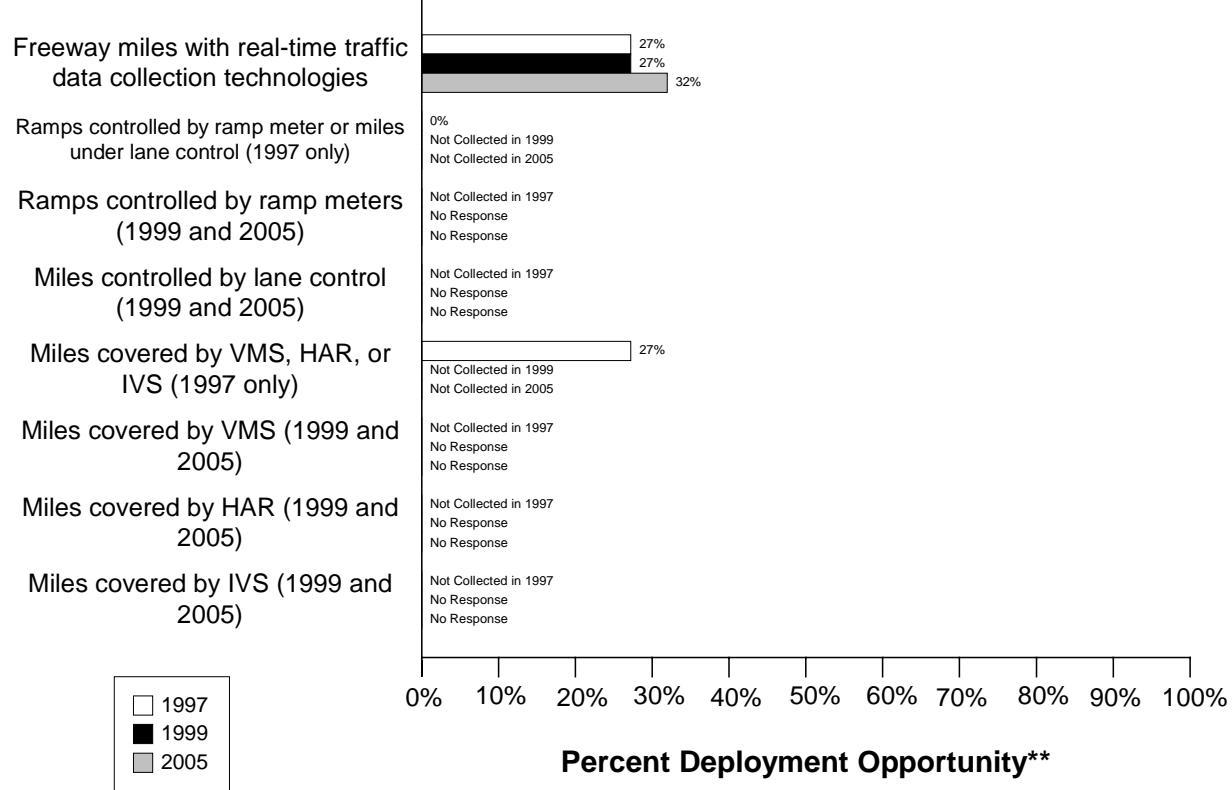
**Example:** Calculating Integration between Arterial Management and Regional Multimodal Traveler Information

Consider a metropolitan area with three arterial management agencies. One out of three provides information to the public using a Regional Multimodal Traveler Information Media (e.g., internet, kiosk, pager, etc...). The integration indicator is 1/3 or 33%.

## Freeway Management Component Indicators

Data as of 5/1/00

### Orlando Freeway Management\*



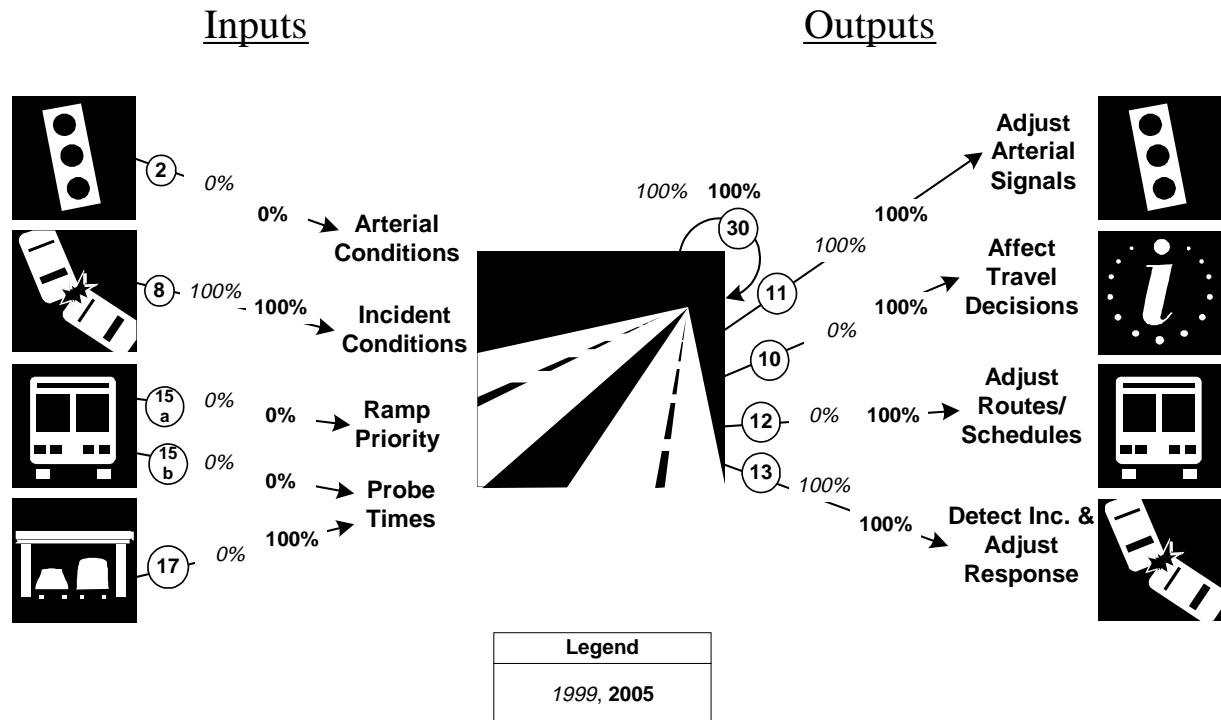
\* Indicators are single surrogates that do not necessarily reflect the full breadth of ITS deployment activity.

\*\* Deployment opportunity reflects potential totals that do not necessarily reflect actual need.

<b>Description</b>	<b>1997</b>			<b>1999</b>			<b>2005</b>		
	<b>Num</b>	<b>Den</b>	<b>%</b>	<b>Num</b>	<b>Den</b>	<b>%</b>	<b>Num</b>	<b>Den</b>	<b>%</b>
Freeway centerline miles are under electronic surveillance for monitoring traffic flow	40	147	27%	40	147	27%	47	147	32%
Freeway entrance ramps are controlled by ramp meters or miles under lane control	0	147	0%	—	—	—	—	—	—

<b>Description</b>	1997			1999			2005		
	Num	Den	%	Num	Den	%	Num	Den	%
Freeway entrance ramps are controlled by ramp meters				230			230		
Freeway centerline miles will be controlled by lane control				147			147		
Freeway miles are covered by VMS, HAR, or IVS	40	147	27%						
Freeway miles are covered by VMS				147			147		
Freeway miles are covered by HAR				147			147		
Freeway miles are covered by IVS				147			147		

**Freeway Management Integration Indicators**  
**Orlando**  
**Freeway Management Integration\***



\* Indicators are single surrogates that do not necessarily reflect the full breadth of ITS deployment activity

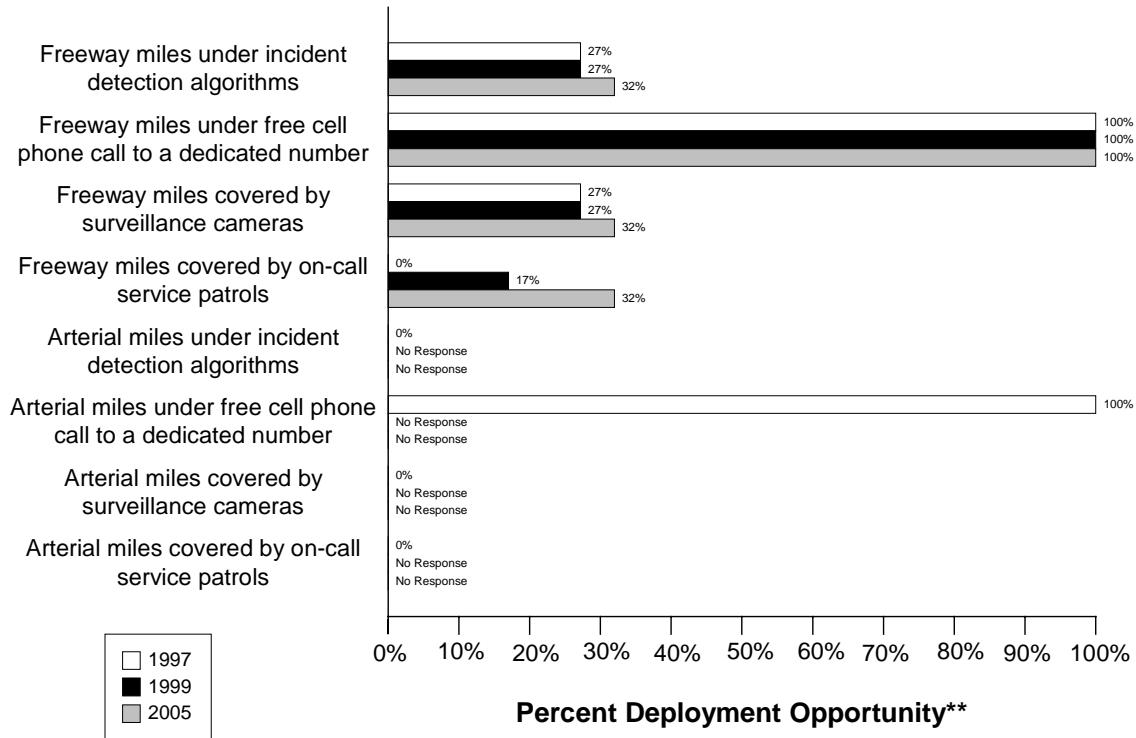
Link Description	1999	2005
2. Arterial Management agencies sending information to Freeway Management	( 0/ 3) 0%	( 0/ 3) 0%
8. Incident Management agencies sending information to Freeway Management	( 1/ 1) 100%	( 1/ 1) 100%
15a. Transit management agencies with vehicles equipped with ramp meter priority	( 0/ 1) 0%	( 0/ 1) 0%
15b. Transit Management agencies with vehicles equipped as probes	( 0/ 1) 0%	( 0/ 1) 0%
17. Freeway Management agencies receiving freeway conditions from vehicle probes	( 0/ 1) 0%	( 1/ 1) 100%
30. Freeway Management agencies sending information to another Freeway Management agency	( 1/ 1) 100%	( 1/ 1) 100%
11. Freeway Management agencies sending information to Arterial Management	( 1/ 1) 100%	( 1/ 1) 100%

<b>Link Description</b>	<b>1999</b>	<b>2005</b>
10. Freeway Management agencies disseminating freeway conditions to the public	( 0/ 1) 0%	( 1/ 1) 100%
12. Freeway Management agencies sending freeway conditions to Transit Management	( 0/ 1) 0%	( 1/ 1) 100%
13. Freeway Management agencies sending freeway conditions to Incident Management	( 1/ 1) 100%	( 1/ 1) 100%

## Incident Management Component Indicators

Data as of 5/1/00

### Orlando Freeway and Arterial Incident Management\*



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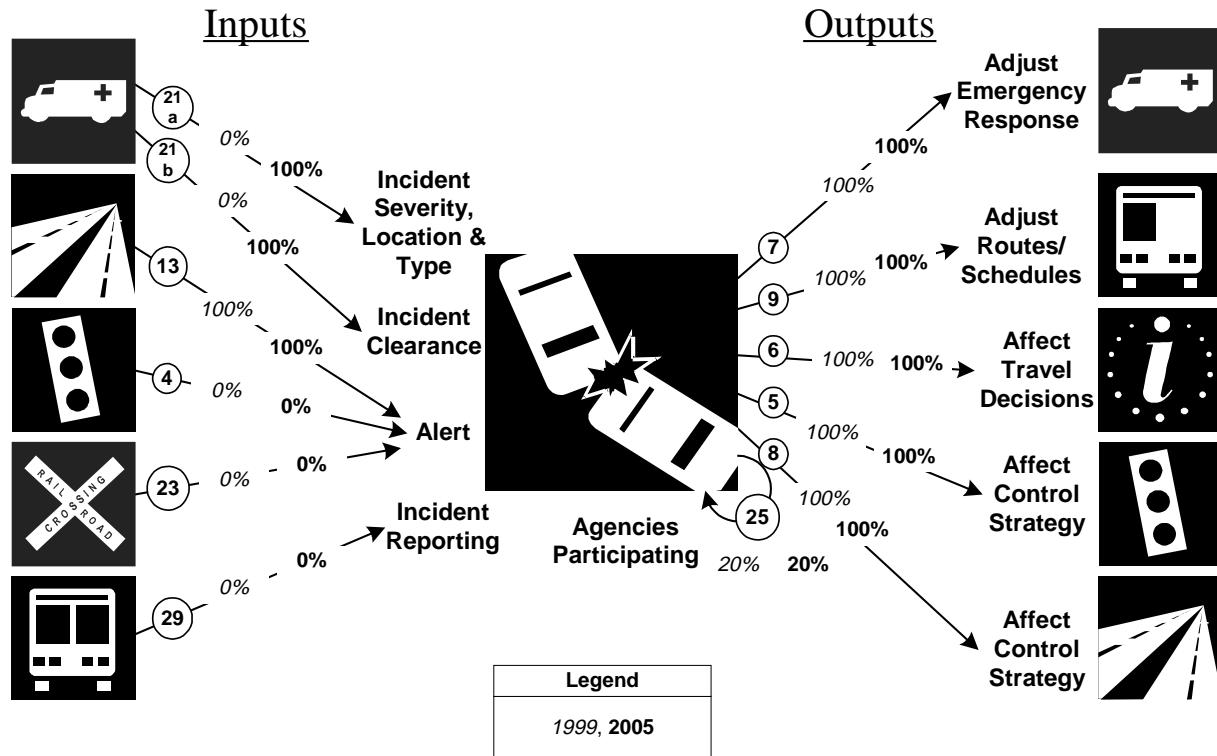
Description	1997			1999			2005		
	Num	Den	%	Num	Den	%	Num	Den	%
Freeway miles are covered by incident detection algorithms	40	147	27%	40	147	27%	47	147	32%
Freeway miles are covered by free cellular phone calls to a dedicated number	147	147	100%	147	147	100%	147	147	100%
Freeway miles are covered by surveillance cameras.	40	147	27%	40	147	27%	47	147	32%

<b>Description</b>	1997			1999			2005		
	Num	Den	%	Num	Den	%	Num	Den	%
Freeway miles are covered by on-call publicly-sponsored service patrol or towing services.	0	147	0%	25	147	17%	47	147	32%
Arterial miles are covered by incident detection algorithms	0	977	0%		977		977		
Arterial miles are covered by free cellular phone calls to a dedicated number	977	977	100%		977		977		
Arterial miles are covered by surveillance cameras	0	977	0%		977		977		
Arterial miles are covered by on-call publicly-sponsored service patrol or towing services	0	977	0%		977		977		

## Incident Management Integration Indicators

### Orlando

## Incident Management Integration\*



\* Indicators are single surrogates that do not necessarily reflect the full breadth of ITS deployment activity

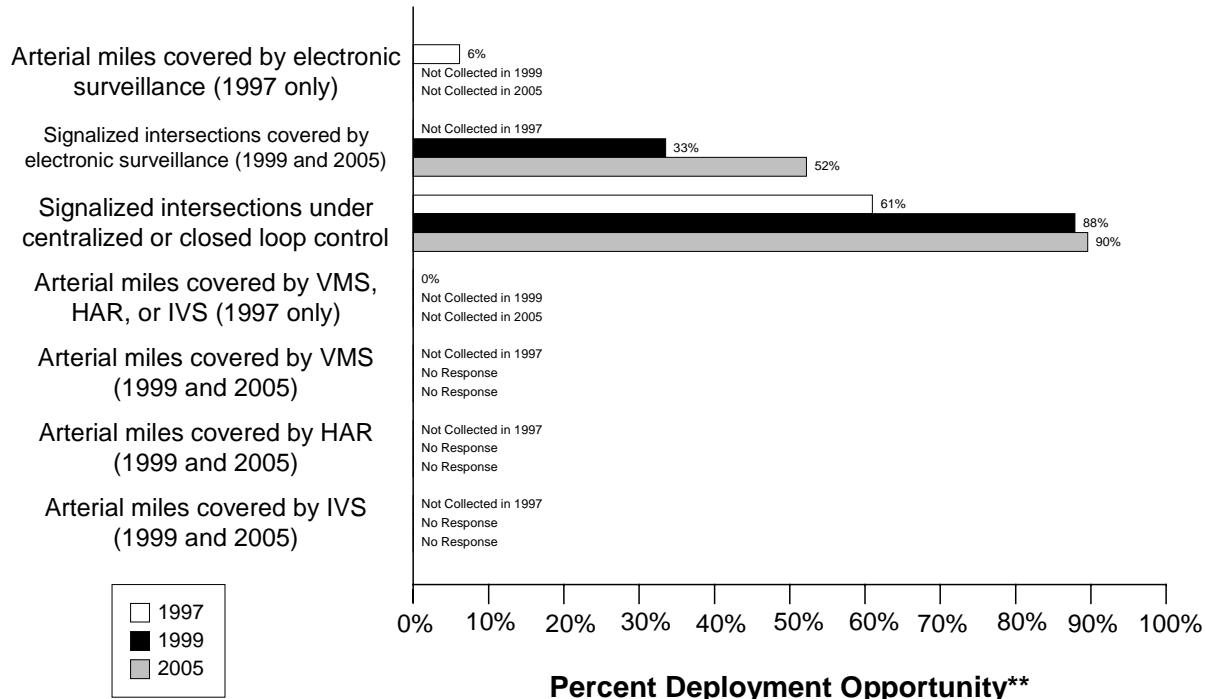
Link Description	1999	2005
21a. Incident management agencies receiving incident severity from Emergency Management	( 0/ 1) 0%	( 1/ 1) 100%
21b. Incident management agencies receiving incident clearance activities from Emergency Management	( 0/ 1) 0%	( 1/ 1) 100%
13. Freeway Management agencies sending freeway conditions to Incident Management	( 1/ 1) 100%	( 1/ 1) 100%
4. Arterial Management agencies sending arterial conditions to Incident Management	( 0/ 3) 0%	( 0/ 3) 0%
23. Arterial Management agencies receive information on highway-rail intersection crossing blockages for the purpose of managing incident response	( 0/ 3) 0%	( 0/ 3) 0%
29. Transit Management agencies report traffic incidents as part of an organized regional incident management program	( 0/ 1) 0%	( 0/ 1) 0%

<b>Link Description</b>	<b>1999</b>	<b>2005</b>
7. Incident management agencies transfer information describing incident severity, location, and type to Emergency Management agencies	( 1/ 1) 100%	( 1/ 1) 100%
9. Incident Management agencies transfer information describing incident severity, location, and type to Transit Management agencies	( 1/ 1) 100%	( 1/ 1) 100%
6. Incident Management agencies disseminate information describing incident severity, location, and type to the public	( 1/ 1) 100%	( 1/ 1) 100%
5. Incident Management agencies transfer information describing incident severity, location, and type to Arterial Management agencies	( 1/ 1) 100%	( 1/ 1) 100%
8. Incident Management agencies transfer information describing incident severity, location, and type to Freeway Management agencies	( 1/ 1) 100%	( 1/ 1) 100%
25. Police, fire, and EMS agencies participating in a formal incident management plan/team	( 1/ 5) 20%	( 1/ 5) 20%

## Arterial Management Component Indicators

Data as of 5/1/00

### Orlando Arterial Management\*



\* Indicators are single surrogates that do not necessarily reflect the full breadth of ITS deployment activity.

\*\* Deployment opportunity reflects potential totals that do not necessarily reflect actual need.

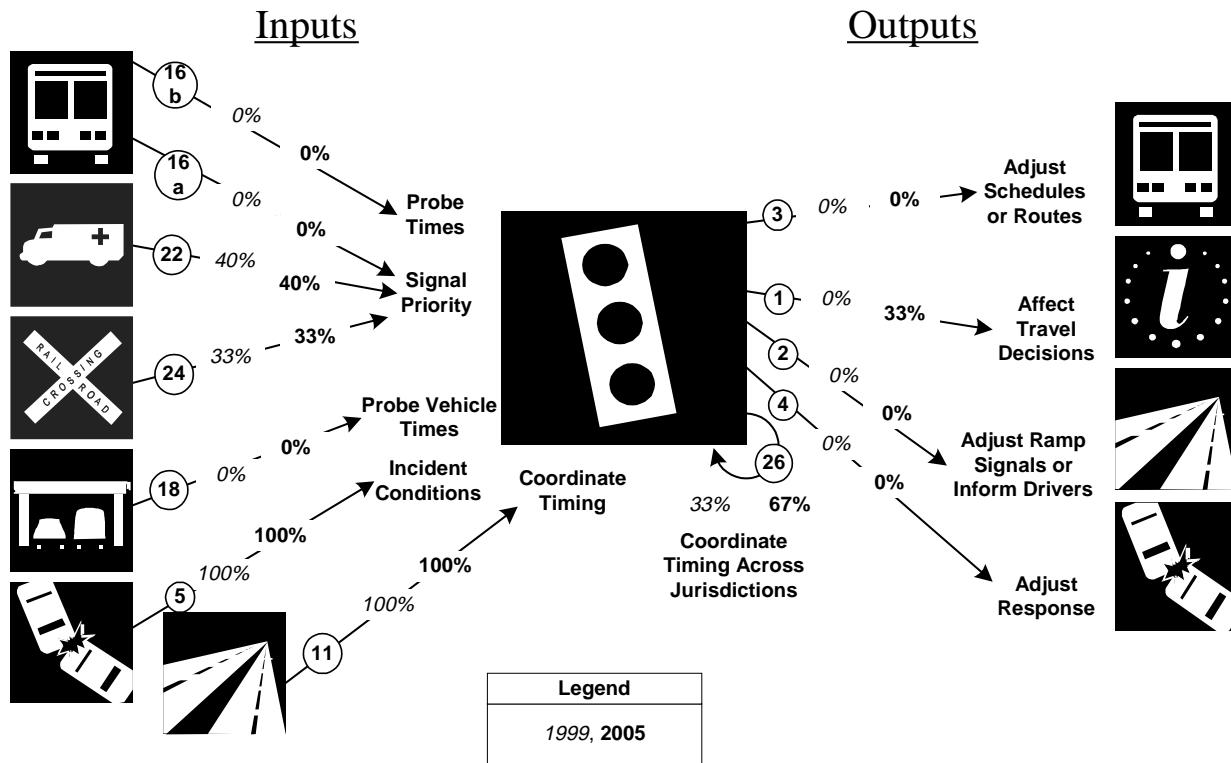
Description	1997			1999			2005		
	Num	Den	%	Num	Den	%	Num	Den	%
Arterial miles covered by electronic surveillance	60	977	6%						
Signalized intersections are covered by electronic surveillance for monitoring traffic flow				202	603	33%	350	670	52%
Signalized intersections are under centralized or closed loop control	645	1058	61%	530	603	88%	600	670	90%

<b>Description</b>	<b>1997</b>			<b>1999</b>			<b>2005</b>		
	Num	Den	%	Num	Den	%	Num	Den	%
Arterial miles are covered by VMS, HAR, or IVS	0	977	0%						
Arterial miles are covered by VMS				977			977		
Arterial miles are covered by HAR				977			977		
Arterial miles are covered by IVS				977			977		

## Arterial Management Integration Indicators

### Orlando

## Arterial Management Integration\*



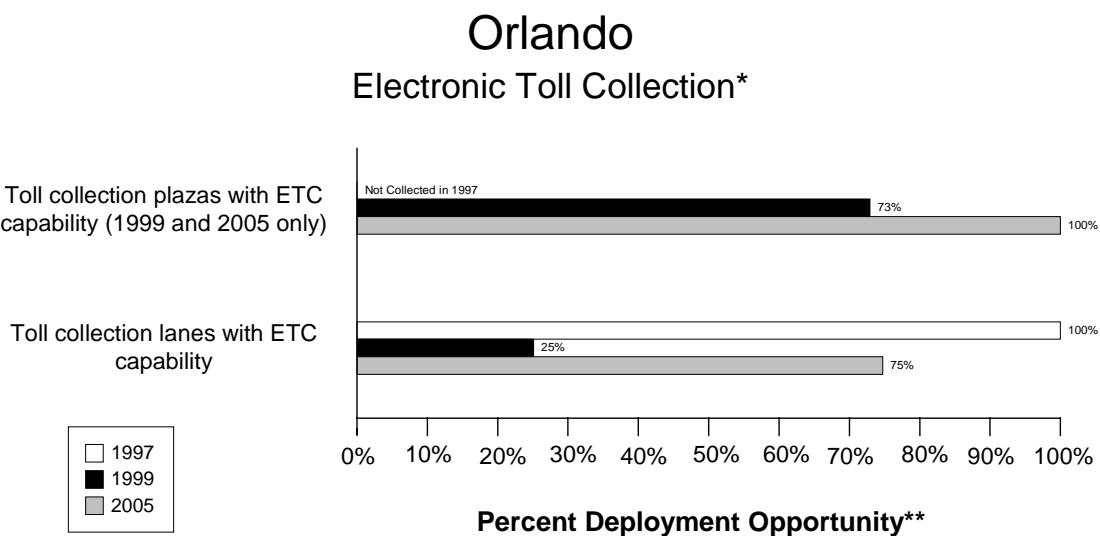
\* Indicators are single surrogates that do not necessarily reflect the full breadth of ITS deployment activity

Link Description	1999	2005
16a. Transit management agencies with vehicles equipped with traffic signal priority	( 0 / 1) 0%	( 0 / 1) 0%
16b. Transit Management agencies have vehicles equipped as probes on arterials	( 0 / 1) 0%	( 0 / 1) 0%
22. Emergency Management agencies have vehicles equipped with traffic signal preemption capability	( 2 / 5) 40%	( 2 / 5) 40%
24. Arterial Management agencies have traffic signals within 200 feet of a highway rail intersection with the capability of having their signal timing adjusted in response to a train crossing	( 1 / 3) 33%	( 1 / 3) 33%
18. Number of Arterial Management agencies receiving information from vehicle probes	( 0 / 3) 0%	( 0 / 3) 0%
5. Incident Management agencies transfer information describing incident severity, location, and type to Arterial Management	( 1 / 1) 100%	( 1 / 1) 100%
11. Freeway Management agencies transfer freeway travel times, speeds, and conditions to Arterial Management agencies	( 1 / 1) 100%	( 1 / 1) 100%

<b>Link Description</b>	<b>1999</b>	<b>2005</b>
3. Arterial Management agencies transfer arterial travel times, speeds, and conditions to Transit Management	( 0/ 3) 0%	( 0/ 3) 0%
1. Arterial Management agencies disseminate arterial travel times, speeds, and conditions to the public	( 0/ 3) 0%	( 1/ 3) 33%
2. Arterial Management agencies send traffic condition information to Freeway Management	( 0/ 3) 0%	( 0/ 3) 0%
4. Arterial Management agencies transfer arterial travel times, speeds, and conditions to Incident Management	( 0/ 3) 0%	( 0/ 3) 0%
26. Arterial Management agencies under cooperative agreement to share traffic signal timing for coordinated response	( 1/ 3) 33%	( 2/ 3) 67%

## Electronic Toll Collection Component Indicators

Data as of 5/1/00



\* Indicators are single surrogates that do not necessarily reflect the full breadth of ITS deployment activity.

\*\* Deployment opportunity reflects potential totals that do not necessarily reflect actual need.

Description	1997			1999			2005		
	Num	Den	%	Num	Den	%	Num	Den	%
Toll collection plazas with ETC capability				62	85	73%	102	102	100%
Toll collection lanes with ETC capability	173	173	100%	263	1048	25%	858	1148	75%

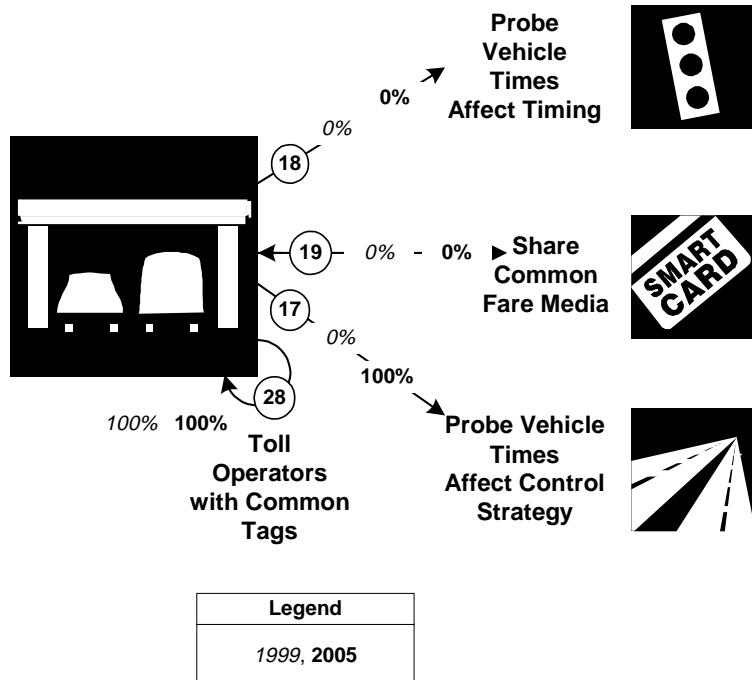
# Electronic Toll Collection Integration Indicators

## Orlando

### Electronic Toll Collection Integration\*

#### Inputs

#### Outputs



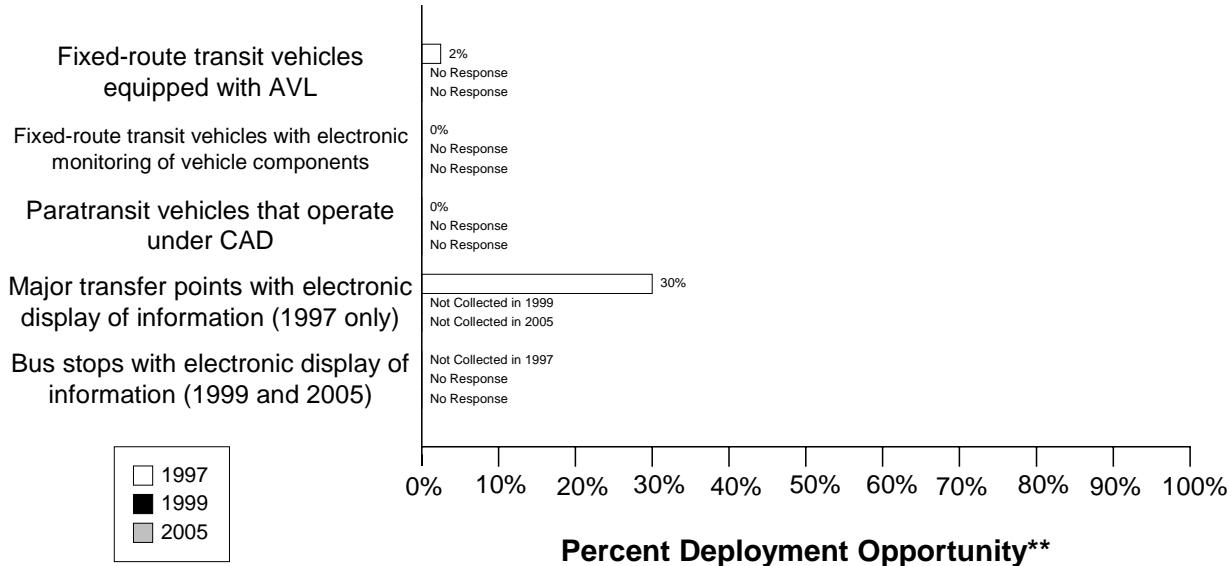
\* Indicators are single surrogates that do not necessarily reflect the full breadth of ITS deployment activity

<b>Link Description</b>	<b>1999</b>	<b>2005</b>
18. Number of Arterial Management agencies receiving information from vehicle probes	( 0/ 3) 0%	( 0/ 3) 0%
19. Transit agencies that accept electronic payment through the use of electronic toll collection media	( 0/ 1) 0%	( 0/ 1) 0%
17. Freeway Management agencies receiving information from vehicle probes	( 0/ 1) 0%	( 1/ 1) 100%
28. Toll operators using common toll tag technology	( 4/ 4) 100%	( 4/ 4) 100%

## Transit Management Component Indicators

Data as of 5/1/00

### Orlando Transit Management\*



\* Indicators are single surrogates that do not necessarily reflect the full breadth of ITS deployment activity.

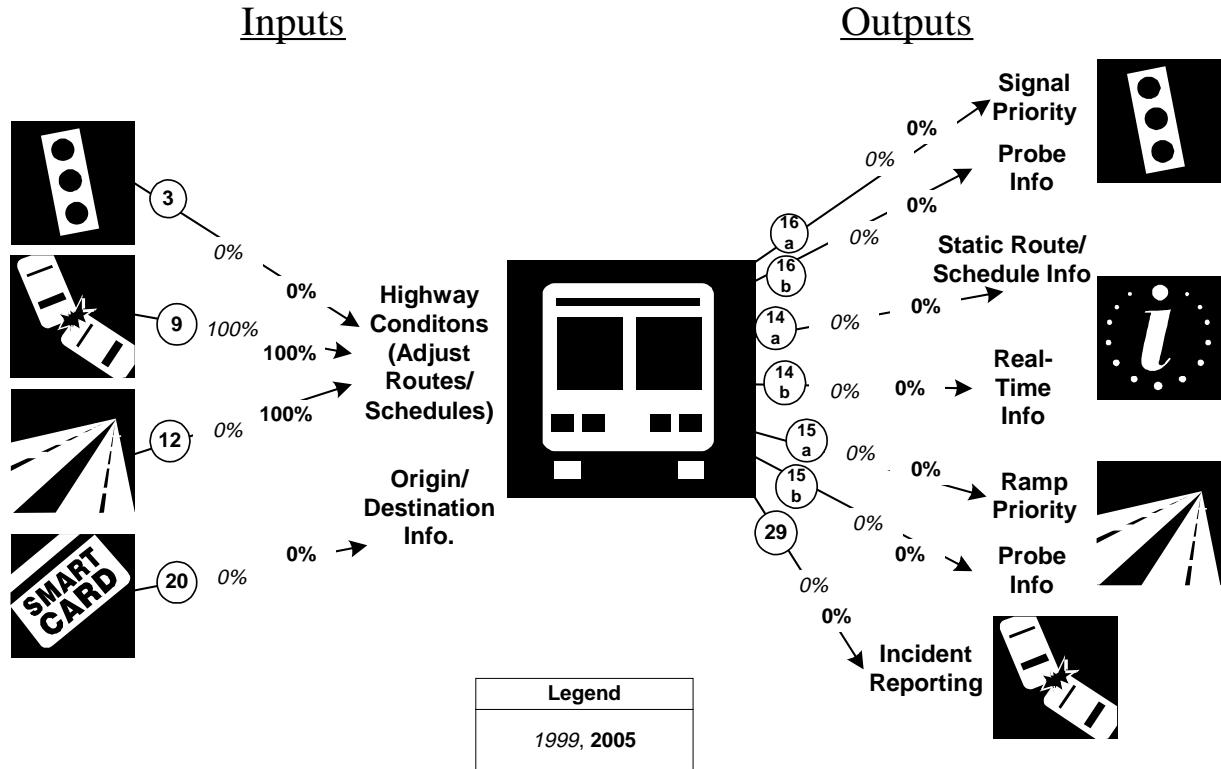
\*\* Deployment opportunity reflects potential totals that do not necessarily reflect actual need.

<b>Description</b>	<b>1997</b>			<b>1999</b>			<b>2005</b>		
	<b>Num</b>	<b>Den</b>	<b>%</b>	<b>Num</b>	<b>Den</b>	<b>%</b>	<b>Num</b>	<b>Den</b>	<b>%</b>
Fixed-route transit vehicles are equipped with AVL	5	202	2%						
Fixed-route transit vehicles are equipped with electronic monitoring of vehicle component	0	202	0%						
Paratransit vehicles operate under computer-aided dispatch	0	113	0%						
Percent fixed-route transfer locations with electronic display of information	3	10	30%						
Bus stops display information to the public									

# Transit Management Integration Indicators

## Orlando

### Transit Management Integration\*



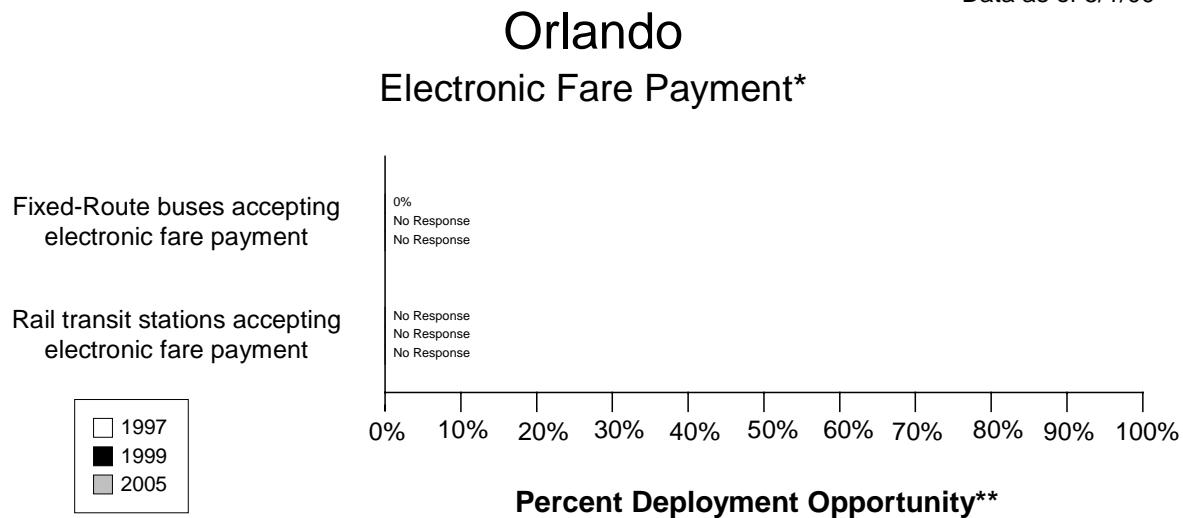
\* Indicators are single surrogates that do not necessarily reflect the full breadth of ITS deployment activity

Link Description	1999	2005
3. Arterial Management agencies transfer arterial travel times, speeds, and conditions to Transit Management	( 0 / 3 ) 0%	( 0 / 3 ) 0%
9. Incident management agencies transfer information describing incident severity, location, and type to Transit Management	( 1 / 1 ) 100%	( 1 / 1 ) 100%
12. Freeway Management agencies transfer freeway travel times, speeds, and conditions to Transit Management	( 0 / 1 ) 0%	( 1 / 1 ) 100%
20. Transit Management agencies using Electronic Fare Payment data in transit service planning	( 0 / 1 ) 0%	( 0 / 1 ) 0%
16a. Transit Management agencies have vehicles equipped with traffic signal priority capability	( 0 / 1 ) 0%	( 0 / 1 ) 0%
16b. Transit Management agencies have vehicles equipped as probes on arterials	( 0 / 1 ) 0%	( 0 / 1 ) 0%
14a. Transit Management agencies disseminate information describing transit routes, schedules, and fares to travelers	( 0 / 1 ) 0%	( 0 / 1 ) 0%

<b>Link Description</b>	<b>1999</b>	<b>2005</b>
14b. Transit Management agencies disseminate information describing schedule/route adherence to travelers	( 0/ 1) 0%	( 0/ 1) 0%
15a. Transit Management agencies have vehicles equipped with ramp meter priority capability	( 0/ 1) 0%	( 0/ 1) 0%
15b. Transit Management agencies have vehicles equipped as probes on freeways	( 0/ 1) 0%	( 0/ 1) 0%
29. Transit Management agencies that report traffic incidents as part of an organized regional Incident Management program	( 0/ 1) 0%	( 0/ 1) 0%

## Electronic Fare Payment Component Indicators

Data as of 5/1/00



\* Indicators are single surrogates that do not necessarily reflect the full breadth of ITS deployment activity.

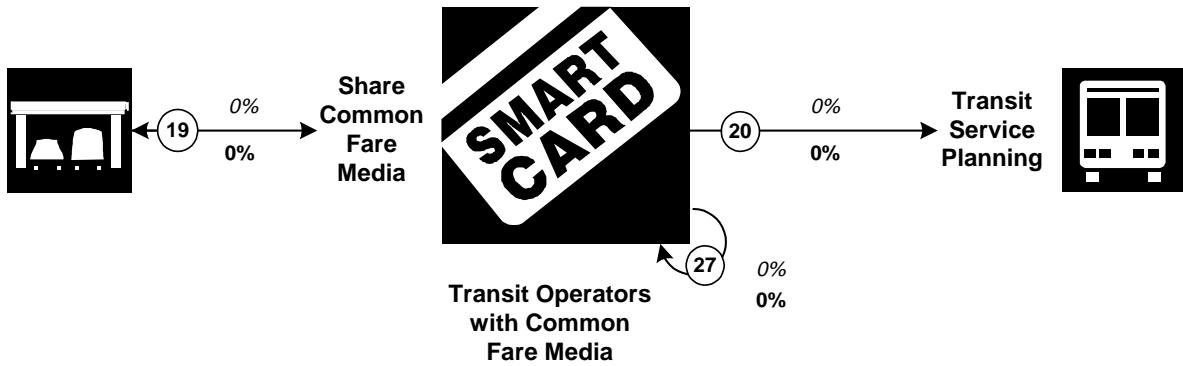
\*\* Deployment opportunity reflects potential totals that do not necessarily reflect actual need.

<b>Description</b>	<b>1997</b>			<b>1999</b>			<b>2005</b>		
	Num	Den	%	Num	Den	%	Num	Den	%
Fixed-route transit vehicles that accept electronic payment	0	202	0%						
Rail transit stations that accept electronic payment	0	0							

**Electronic Fare Payment Integration Indicators**  
**Orlando**  
**Electronic Fare Payment Integration\***

Inputs

Outputs



Legend	
1999	
2005	

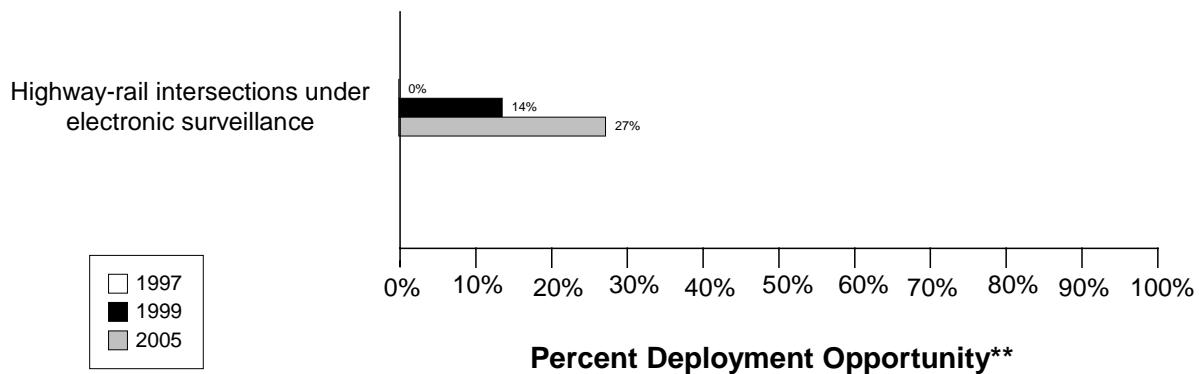
\* Indicators are single surrogates that do not necessarily reflect the full breadth of ITS deployment activity

Link Description	1999	2005
19. Transit agencies that accept electronic payment through the use of electronic toll collection media	( 0/ 1) 0%	( 0/ 1) 0%
20. Transit Management agencies use Electronic Fare Payment data in transit service planning	( 0/ 1) 0%	( 0/ 1) 0%
27. Transit Management agencies that use the same electronic payment system	( 0/ 1) 0%	( 0/ 1) 0%

## Highway Rail Intersection Component Indicators

Data as of 5/1/00

### Orlando Highway-Rail Intersections\*



\* Indicators are single surrogates that do not necessarily reflect the full breadth of ITS deployment activity.

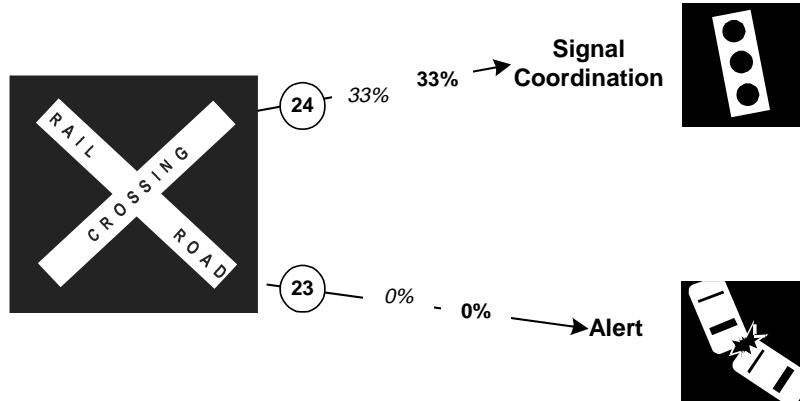
\*\* Deployment opportunity reflects potential totals that do not necessarily reflect actual need.

Description	1997			1999			2005		
	Num	Den	%	Num	Den	%	Num	Den	%
Highway-rail intersections are under electronic surveillance	0	319	0%	6	44	14%	12	44	27%

**Highway Rail Intersection Integration Indicators**  
**Orlando**  
**Highway Rail Intersections Integration\***

Inputs

Outputs



Legend
1999, 2005

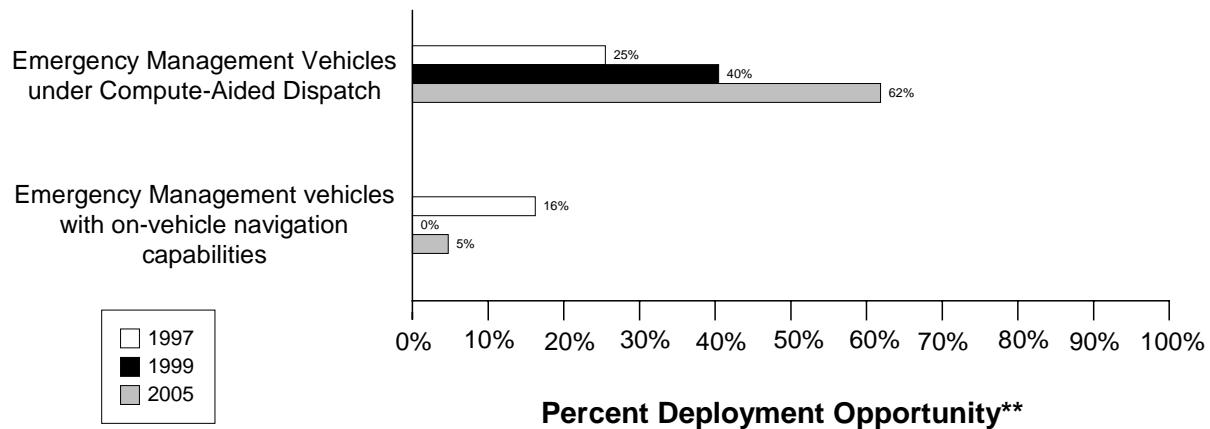
\* Indicators are single surrogates that do not necessarily reflect the full breadth of ITS deployment activity

Link Description	1999	2005
24. Arterial Management agencies with traffic signals within 200 feet of a highway rail intersection with the capability of having their signal timing adjusted in response to a train crossing	( 1/ 3) 33%	( 1/ 3) 33%
23. Arterial Management agencies receive information on highway-rail intersection crossing blockages for the purpose of managing incident response	( 0/ 3) 0%	( 0/ 3) 0%

## Emergency Management Component Indicators

Data as of 5/1/00

### Orlando Emergency Management\*



\* Indicators are single surrogates that do not necessarily reflect the full breadth of ITS deployment activity.

\*\* Deployment opportunity reflects potential totals that do not necessarily reflect actual need.

<b>Description</b>	<b>1997</b>			<b>1999</b>			<b>2005</b>		
	Num	Den	%	Num	Den	%	Num	Den	%
Public sector emergency vehicles that operate under computer-aided dispatch	450	1767	25%	924	2286	40%	1440	2327	62%
Public sector emergency vehicles that have in-vehicle route guidance capability	287	1767	16%	0	2286	0%	110	2327	5%

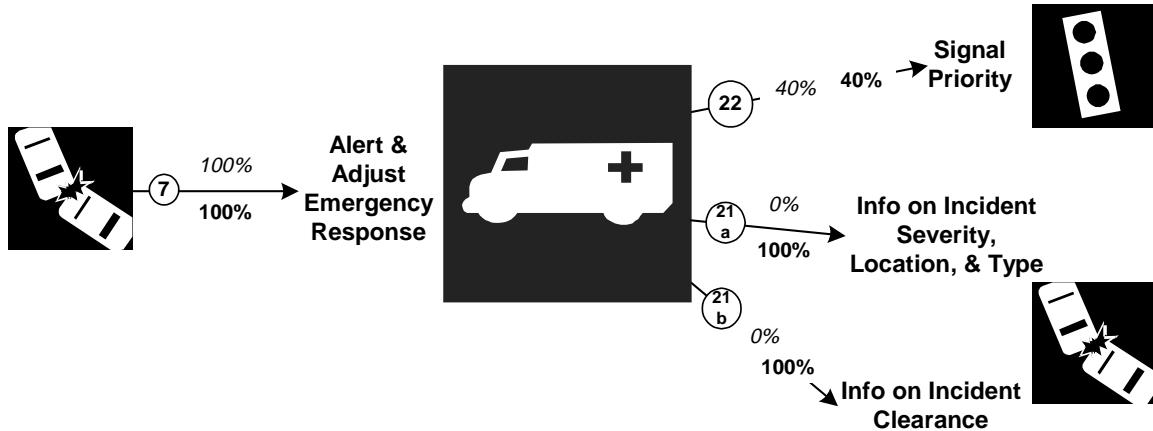
# Emergency Management Integration Indicators

## Orlando

### Emergency Management Integration\*

#### Inputs

#### Outputs



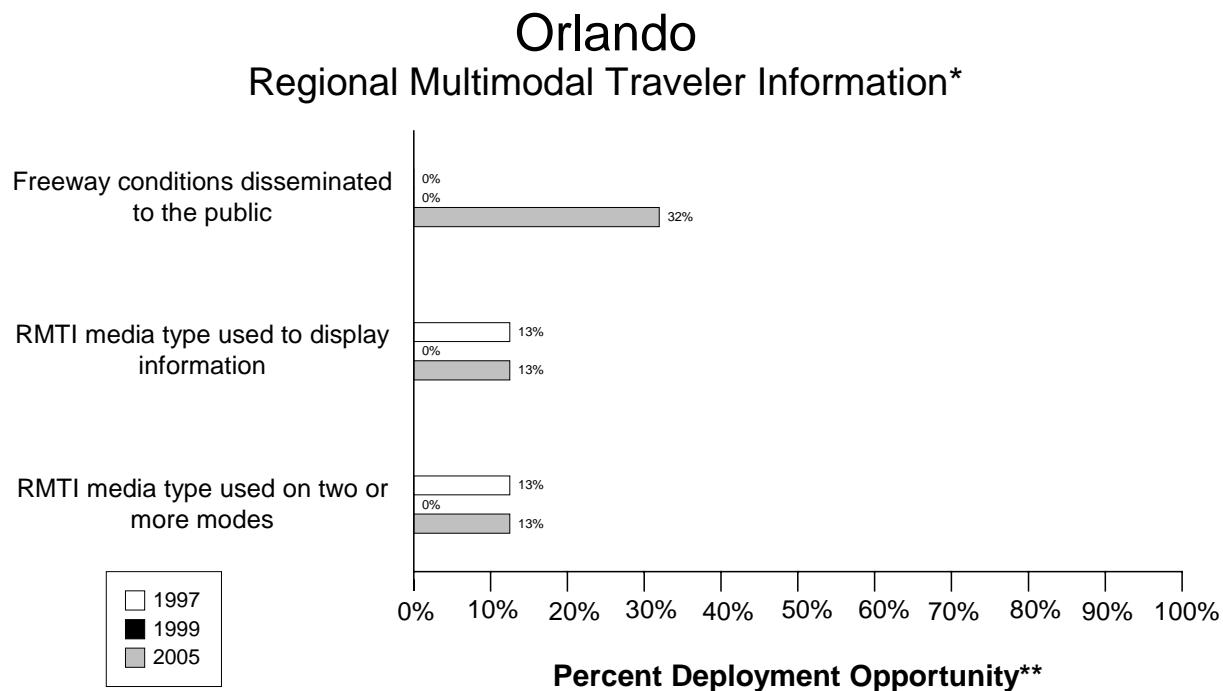
Legend
1999, 2005

\* Indicators are single surrogates that do not necessarily reflect the full breadth of ITS deployment activity

Link Description	1999	2005
7. Freeway Management agencies transfer information describing incident severity, location, and type to Emergency Management agencies	( 1 / 1) 100%	( 1 / 1) 100%
22. Emergency Management agencies have vehicles equipped with traffic signal preemption capability	( 2 / 5) 40%	( 2 / 5) 40%
21a. Freeway Management agencies receive incident severity, location, and type data from Emergency Management agencies	( 0 / 1) 0%	( 1 / 1) 100%
21b. Freeway Management agencies receive incident clearance activities information from Emergency Management agencies	( 0 / 1) 0%	( 1 / 1) 100%

## Regional Multimodal Traveler Information Component Indicators

Data as of 5/1/00



\* Indicators are single surrogates that do not necessarily reflect the full breadth of ITS deployment activity.

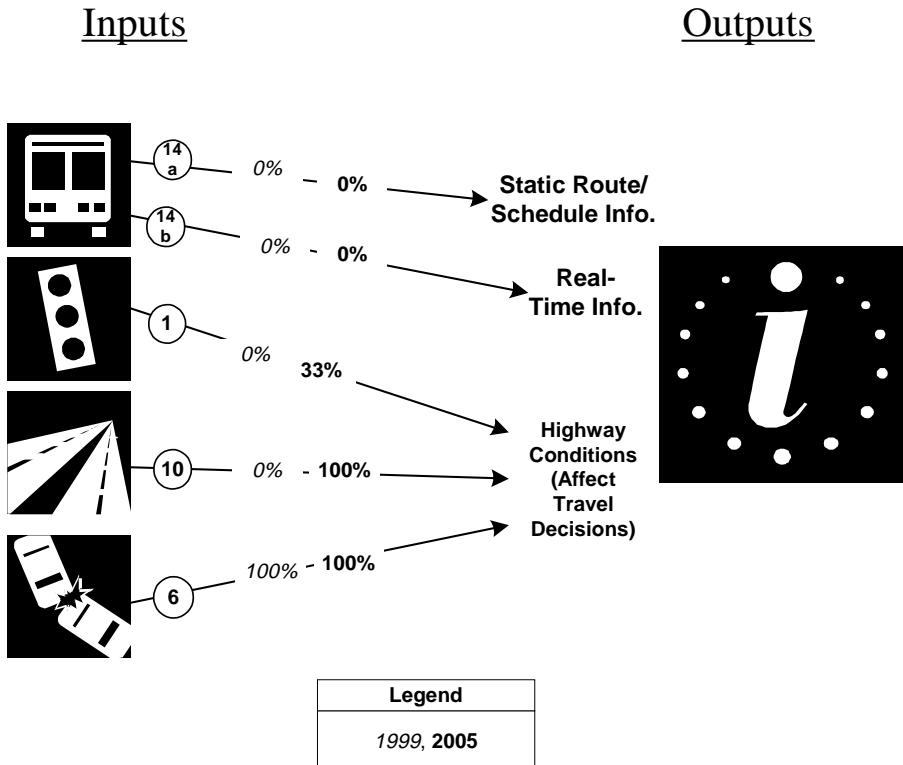
\*\* Deployment opportunity reflects potential totals that do not necessarily reflect actual need.

<b>Description</b>	<b>1997</b>			<b>1999</b>			<b>2005</b>		
	Num	Den	%	Num	Den	%	Num	Den	%
Freeway conditions disseminated to travelers	0	147	0%	0	147	0%	47	147	32%
Possible RMTI media types are used to display information to travelers	1	8	13%	0	8	0%	1	8	13%
Possible RMTI media are used to display information on <i>two or more modes</i> to travelers	1	8	13%	0	8	0%	1	8	13%

## Regional Multimodal Traveler Information Integration Indicators

### Orlando

## Regional Multimodal Traveler Information Integration\*

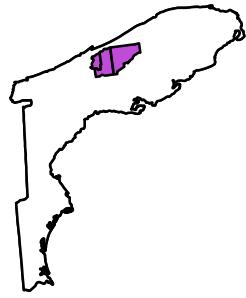
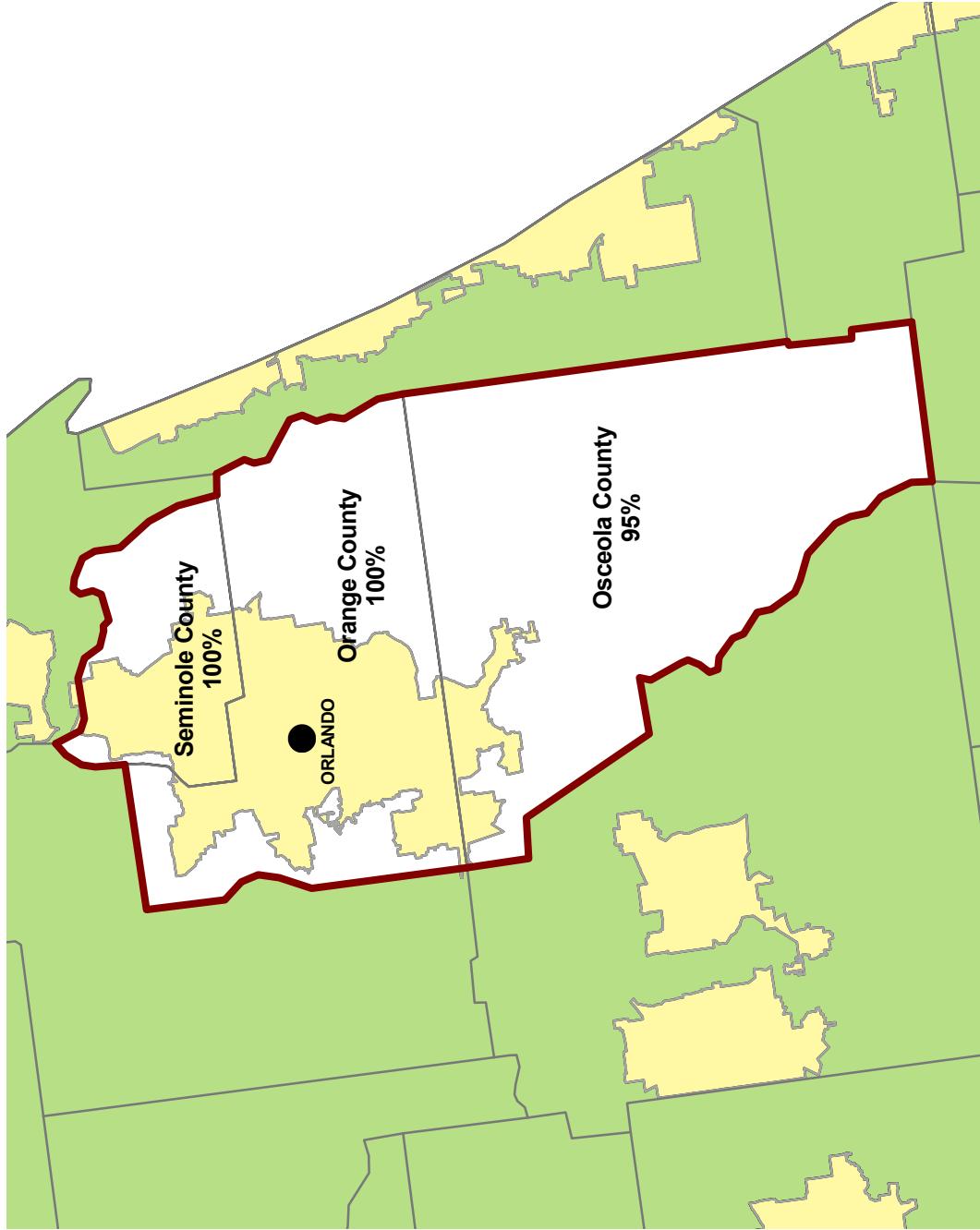


\* Indicators are single surrogates that do not necessarily reflect the full breadth of ITS deployment activity

Link Description	1999	2005
14a. Transit Management agencies that disseminate information describing transit routes, schedules, and fares to travelers	( 0/ 1) 0%	( 0/ 1) 0%
14b. Transit Management agencies that disseminate information describing schedule/route adherence to travelers	( 0/ 1) 0%	( 0/ 1) 0%
1. Arterial Management agencies that disseminate arterial travel times, speeds, and conditions to the public	( 0/ 3) 0%	( 1/ 3) 33%
10. Freeway Management agencies that disseminate freeway travel times, speeds, and conditions to travelers	( 0/ 1) 0%	( 1/ 1) 100%
6. Incident Management agencies that disseminate information describing incident severity, location, and type to the public	( 1/ 1) 100%	( 1/ 1) 100%

**Appendix A**  
**Survey Coverage Area**

# ORLANDO URBANIZED AREA METROPOLITAN PLANNING ORGANIZATION, FL



● City Included in Surveys  
■ Metropolitan Planning Area Boundary  
County Boundary  
N  
Urbanized Area  
Outside Survey Area  
Percentage on the Map Represents Percentage of County Population Included within MPO Boundary

**Appendix B**  
**Surveyed Agencies**

## Surveyed Agencies

Agency Name	Phone	Fax	1999			1997		
			Out	In	Out	In	Out	In
<b>ORLANDO</b>								
<b>Arterial Management</b>								
Seminole County	(407) 323-2500	(407) 324-0780	5/28/1999		08/14/1997	10/28/1997		
Osceola County	(407) 847-1260	(407) 847-1409	5/28/1999	2/11/2000	08/14/1997	08/26/1997		
Orlando City	(407) 246-3255	(407) 246-2892	5/28/1999	6/11/1999	08/14/1997	08/26/1997		
Orange County	(407) 836-7866	(407) 836-7869	5/28/1999	6/28/1999	08/14/1997	09/15/1997		
<b>Electronic Toll Collection</b>								
Orlando Orange County Expressway	(407) 316-3800	(407) 316-3801	6/2/1999	6/3/1999	08/14/1997	10/23/1997		
Florida Department of Transportation-Florida	(850) 488-5687	(850) 922-5019	6/3/1999	6/3/1999	08/14/1997	08/18/1997		
<b>Emergency Management Systems</b>								
Orange County Sheriff's Office	407-836-3700	407-836-3709	6/2/1999	6/7/1999	08/14/1997	08/25/1997		
Orlando Fire Department	(407) 246-2905	(407) 246-2512	6/2/1999	6/4/1999	08/14/1997	06/18/1998		
Orlando Police Department	(407) 246-2470	(407) 246-2732	6/3/1999	8/23/1999	08/14/1997	08/19/1997		
Osceola County Sheriff's Department	(407) 348-1124	(407) 348-1161	6/2/1999	6/7/1999	08/14/1997	06/22/1998		
Seminole County Sheriff's Department	(407) 330-6683	(407) 330-6656	6/3/1999	6/17/1999	08/14/1997	06/18/1998		
<b>Freeway Management</b>								
Florida Department of Transportation	(904) 943-5319	(904) 736-5349	5/28/1999	6/14/1999	08/14/1997	09/25/1997		
<b>MPO</b>								
Orlando Urbanized Area Metropolitan Planning	(407) 481-5672	(407) 481-5680	6/7/1999	7/12/1999				
<b>Transit Management</b>								
LYNX Central Florida Regional Transit Authority	(407) 841-2279	(407) 999-5444	5/28/1999	6/11/1999	08/14/1997	08/28/1997		

**Appendix C**  
**Freeway Management Components**

Freeway Management  
Agencies for Metropolitan Area: Orlando

		1999	Florida Department of Transportation 2005
Agency Returned Survey?		Yes	
<b>FREEWAY MANAGEMENT SECTION</b>			
Number of freeway centerline miles that agency owns or maintains	47		
Number of freeway centerline miles that is used for planning	47		
Number of freeway entrance ramps that agency owns, operates or maintains	119		
Number of freeway entrance ramps that is used for planning	119		
<b>Type of facilities used to conduct freeway/incident management activities</b>			
Activities housed in a free-standing dedicated building?	No		
Activities housed in a building shared with other activities?	Yes		
Activities conducted in a dedicated control room?	Yes		
Control room contains operator console(s)?	Yes		
Control room contains electronic wall map?	No		
Control room contains CCTV display(s)?	Yes		
Activities conducted in a room containing workstations or PCs that manage traffic?	Yes		
Facilities are electronically linked to other transportation mgt facilities?	Yes		
<b>Staffing and hours of operation of freeway/incident management activities</b>			
Number of full-time agency staff members	4		
Number of full time contractor staff members	NR		
Number of part-time agency staff members	4		
Number of part-time contractor staff members	NR		
Staffed 24 hours day by agency staff or by others	agency		
Staffed during peak hours only by agency staff or by others	NR		
Staffed by others during off-peak hours	No		
Agency staff perform transportation management as an ancillary duty	Yes		
Agency staff dedicated to transportation management duty	Yes		
<b>Types of operations conducted for freeway/incident management</b>			
Incident detection and management?	Yes		
This metropolitan area?	Yes		
Other metropolitan area?	Yes		
Statewide?	No		
Monitoring and troubleshooting status of system components?	Yes		
Manual override of ramp metering rates at freeway on-ramps?	No		
Operating transportation management roadside devices?	Yes		
Radio communications with other agencies?	No		
Exchange of electronic data with other agencies such as computer aided dispatch?	Yes		
<b>Real-Time Traffic Data Collection Technologies</b>			
Total number of miles under surveillance with real-time data collection tech.	40		47

Freeway Management  
Agencies for Metropolitan Area: Orlando

		1999	Florida Department of Transportation 2005
<b><u>Number of Stations with data collection technologies</u></b>			
Loop detectors		70	90
Video imaging detectors		0	0
Probe readers (elec. toll tags, transit vehicles, other technology)		0	0
Microwave radar		0	0
Other (e.g., acoustic detectors)		0	2
<b><u>Number of Miles covered with data collection technologies</u></b>			
Loop detectors		40	47
Video imaging detectors		0	0
Probe readers (elec. toll tags, transit vehicles, other technology)		0	0
Microwave radar		0	0
Other (e.g., acoustic detectors)		0	0
<b><u>Variable Message Signs (VMS) on Freeways</u></b>			
Candidate locations for deployment of VMS where VMS has been deployed		NR	NR
Candidate locations for deployment of VMS		36	40
<b><u>Roadside Technologies used to Distribute Traveler Information</u></b>			
Total number of miles where information is distributed		38	47
<b><u>Number deployed</u></b>			
Highway advisory radio		0	0
In-vehicle signing		0	0
Portable variable message signs		0	0
Other		36	40
<b><u>Miles covered</u></b>			
Highway advisory radio		0	0
In-vehicle signing		0	0
Portable variable message signs		0	0
Other		0	0
<b><u>Ramp Meters on Freeways</u></b>			
Number of entrance ramp meters operated under isolated control		NR	NR
Number of entrance ramp meters operated under central control		NR	NR
Number of entrance ramp meters that provide preemption for emergency vehicles		NR	NR
Number of entrance ramp meters that provide priority for transit vehicles		NR	NR
Total number of metered ramps		NR	NR
Freeway centerline miles under lane control		NR	NR
<b><u>Communication Links</u></b>			
<i>Freeway centerline miles covered by the following type of communication</i>			
Twisted pair cable		0	0
Coaxial cable		0	0
Fiber-optic cable		40	47
Microwave radio		0	0
Other		0	0
<b><u>ITS Standards Used Related to Freeway Management</u></b>			
ATMS Data Dictionary Sections 1 and 2 (ITE TM 1.01)		No	No

Freeway Management  
Agencies for Metropolitan Area: Orlando

		1999	Florida Department of Transportation 2005
ATMS Data Dictionary Sections 3 and 4 (ITE TM 1-02)		No	
Message Set for External TMC Communication (ITE-9604-1)		No	
NTCIP Class B Profile (AASHTO TS 3.3)		Yes	
NTCIP Data Collection and Monitoring Devices (AASHTO TS 3.DCM)		No	
NTCIP Object Definitions for Environmental Sensor Stations (AASHTO TS 3.7)		No	
NTCIP Object Definitions for Dynamic Message Signs (AASHTO TS 3.6)		Yes	
NTCIP Object Definitions for Highway Advisory Radio (AASHTO TS 3.HAR)		No	
NTCIP Object Definitions for Ramp Meter Control (AASHTO TS 3.RMC)		No	
NTCIP Object Definitions for Transportation Sensor Systems (AASHTO TS 3.TSS)		No	
NTCIP Object Definitions for Video Camera Control (AASHTO TS 3.VCC)		Yes	
Would agency be willing to participate in testing of ITS Standards?		Yes	
Have agreements in place with other agencies to use similar hardware and software to aid maintenance and interoperability?		No	
<b>INCIDENT MANAGEMENT SECTION</b>			
<b>Use of Service Patrols to Assist in Detection and Response to Incidents</b>			
Publicly operated service patrol vehicles		Yes	
Privately operated service patrol vehicles operated under public contract		No	
Total number of freeway miles patrolled by these services		25	47
<b>Miles Covered by Methods to Detect and Verify Incidents</b>			
Free cellular phone call to a dedicated phone number other than 911		47	NR
Police patrols		NR	NR
Computer algorithms linked to traffic surveillance equipment		40	47
CCTV		40	47
Private sector sources (e.g., Shadow Traffic, SmartRoutes)		47	47
Other (e.g., free cell phone call to an area radio system, etc.)		47	0
<b>Procedures in place for Freeway Incident Response?</b>			
Working agreement(s) arrangement(s) with other agencies		No	
Inter-agency incident management admin. team that meets regularly		Yes	
Major incident response team that responds to major incidents		No	
Set of goals/objectives for incident mgmt that has been adopted by agencies in region		No	
<b>Central focal point for facilitating the two-way flow of information among agencies responding to an incident?</b>			
The central focal point is a Freeway or Traffic Management Center		No	
The central focal point is a Police, Fire or joint dispatch center		No	
The central focal point is another center		No	
<b>Methods of Communication Used On-Site at an Incident</b>			
Police			
Two-way radio		No	
800 MHz trunked radio		Yes	
Cellular telephone		No	
Hand-held (i.e., walkie-talkie)		No	
Automated data systems (i.e., CAD)		Yes	

Freeway Management  
Agencies for Metropolitan Area: Orlando

		Florida Department of Transportation 1999	Florida Department of Transportation 2005
<u>Fire</u>			
Two-way radio		No	
800 MHz trunked radio		Yes	
Cellular telephone		No	
Hand-held (i.e., walkie-talkie)		No	
Automated data systems (i.e., CAD)		No	
<u>DOT</u>			
Two-way radio		Yes	
800 MHz trunked radio		No	
Cellular telephone		Yes	
Hand-held (i.e., walkie-talkie)		No	
Automated data systems (i.e., CAD)		No	
<u>Towing</u>			
Two-way radio		No	
800 MHz trunked radio		No	
Cellular telephone		No	
Hand-held (i.e., walkie-talkie)		No	
Automated data systems (i.e., CAD)		No	
<b>Which police agencies typically respond to incidents on freeways?</b>			
State Police		Yes	
County Police or Sheriff		No	
City Police		Yes	
<b>Who provides on-site emergency medical response?</b>			
Fire		Yes	
Emergency Management Service Agency		No	
Private hospital		No	
<b>Has a multi-agency contact list been developed in area containing the names, phone numbers, etc. for the appropriate response personnel?</b>		Yes	
<b>Is the Incident Command System used to manage incident scenes?</b>		DK	
<b>Is there a legal specification by state law or formal agreement as to who is "in charge" at the incident scene?</b>			
Specified by state law?		No	
Formal agreement?		No	
Not specified or don't know?		Yes	
<b>On-scene command post used to manage activities of responding agencies?</b>		DK	
Are there communication linkages to a communications traffic/freeway mgt center?		NR	
<b>Plan developed and adopted by responding agencies for staging and parking response vehicles and equip. at incident site that minimizes lane blockage and facilitates the re-opening of lanes?</b>		No	
<b>Respondents protected through law or court opinion for liability claims for damages to vehicles or cargoes during clearance activities?</b>		DK	
<b>Are overturned tank trucks, which are intact and not leaking, uprighted</b>			

Freeway Management  
Agencies for Metropolitan Area: Orlando

		1999	Florida Department of Transportation	2005
<b>Without first off-loading?</b>		No		
<b>Does your state or local jurisdiction have a law that requires drivers involved in property-damage-only accidents to move the vehicles from travel lanes to a safe location to exchange info and wait for police?</b>		Yes		
<b>Have laws or policies regarding the removal of stalled/abandoned vehicles from freeway shoulders?</b>		No		
<b>Hours abandoned vehicles are allowed to remain on a freeway shoulder?</b>		DK		
<b>Have policies or procedures for quick removal of vehicles?</b>		No		
<b>Is Total Station equipment used to investigate major incidents?</b>		DK		
<b>Handling of Towing Responses to Incidents</b>		No		
<b>Formal contract based on qualifications?</b>		No		
<b>Rotation with companies under contract?</b>		No		
<b>Separate lists kept for light and heavy response and for specialty recovery?</b>		NR		
<b>Rotation list with minimal qualifications?</b>		Yes		
<b>In towing qualifications, do you require towers to be certified under the Towing and Recovery Ass. of America's National Drivers Cert. Program?</b>		DK		
DK: Don't know				
NR: No Response				
Leg: Legislation or action being planned				

**Appendix D**  
**Freeway Management Integration**

Freeway Management Integration  
Agencies for Metropolitan Area: Orlando

Agency Name		Florida Department of Transportation <b>2005</b>
Agency Returned Survey?	Yes	
<b>Freeway Management Section</b>		
<b>Agencies your agency provides freeway travel times, speeds, and conditions information, share infrastructure or coordinates operation</b>		
<b>Freeway Management Agencies</b>		
Provide Information	Florida Highway Patrol, Florida Department of Transportation	Expressway Authority
Share Infrastructure	Florida Highway Patrol, Florida Department of Transportation	Expressway Authority
Coordinate Operation	Florida Highway Patrol, Florida Department of Transportation	Expressway Authority
<b>Incident Management Agencies</b>		
Provide Information	Florida Department of Transportation, Florida Highway Patrol	Expressway Authority
Share Infrastructure	Florida Department of Transportation, Florida Highway Patrol	Expressway Authority
Coordinate Operation	Florida Department of Transportation, Florida Highway Patrol	Expressway Authority
<b>Arterial Management Agencies</b>		
Provide Information	Orlando City, Seminole County, Orange County	Osceola County None listed
Share Infrastructure	Orlando City	Osceola County, Seminole County, Orange County None listed
Coordinate Operation		
<b>Public Transit Operators</b>		
Provide Information		LYNX Central Florida Regional Transit Authority None listed
Share Infrastructure		None listed
Coordinate Operation	LYNX Central Florida Regional Transit Authority	None listed
<b>Receiving real-time information via electronic means from others</b>		

Freeway Management Integration  
Agencies for Metropolitan Area: Orlando

Agency Name		Florida Department of Transportation <b>2005</b>
<b>Incident Management agencies from which your agency receives incident severity, location, and type information</b>	Florida Department of Transportation, Florida Highway Patrol	Expressway Authority
<b>Arterial Management agencies from which your agency receives arterial travel times, speeds, and conditions</b>	Orlando City	Osceola County, Seminole County, Orange County
<b>Public Transit operators from which your agency receives freeway travel times derived from vehicle probes</b>		LYNX Central Florida Regional Transit Authority
<b>Toll Collection agencies from which your agency receives freeway travel times derived from vehicles probes</b>	None listed	Orlando Orange County Expressway Authority/Bee Lin
<b>Freeway Incident Management Section</b>		
<b>Agencies your agency provides incident severity, location, and type info. and/or shares infrastructure and/or coordinates operation</b>		
<b>Arterial Management Agencies</b>		
Provide Information	Orlando City, Seminole County, Orange County	Osceola County
Share Infrastructure	None listed	None listed
Coordinate Operation	Orlando City	Osceola County, Seminole County, Orange County
<b>Emergency Management Agencies</b>		
Provide Information	Orlando Police Department, Florida Highway Patrol	None listed
Share Infrastructure	Florida Highway Patrol	None listed
Coordinate Operation	Florida Highway Patrol	Orlando Police Department, Orlando Police Department
<b>Freeway Management Agencies</b>		
Provide Information	Florida Department of Transportation	Expressway Authority, FDOT Turnpike
Share Infrastructure	Florida Department of Transportation	Expressway Authority
Coordinate Operation	Florida Department of Transportation	Expressway Authority, FDOT Turnpike
<b>Public Transit Operators</b>		

Freeway Management Integration  
Agencies for Metropolitan Area:Orlando

Agency Name		Florida Department of Transportation <b>1999</b>	Florida Department of Transportation <b>2005</b>
Provide Information		LYNX Central Florida Regional Transit Authority	None listed
Share Infrastructure	None listed	None listed	None listed
Coordinate Operation	LYNX Central Florida Regional Transit Authority	None listed	None listed
<b>Receiving real-time information via electronic means from others</b>			
<b>Emergency Management agencies from which your agency receives</b>			
<b>incident clearance and/or incident severity and type</b>			
Receive Arterial Incident Clearance Information	Florida Highway Patrol	Orlando Police Department, Orlando Fire Department	Orlando Police Department, Orlando Fire Department
Receive Arterial Incident Severity Information	Florida Highway Patrol	Orlando Police Department, Orlando Fire Department	Orlando Police Department, Orlando Fire Department
<b>Arterial Management agencies from which your agency receives</b>			
<b>arterial travel times, speeds, and conditions</b>	Orlando City	None listed	None listed
<b>Freeway Management agencies from which your agency receives</b>			
<b>freeway travel times, speeds, and conditions</b>	Florida Department of Transportation	Expressway Authority, FDOT Turnpike	

\*short survey: Agency responded using a short survey. The survey did not include names of individual agencies, but only identified whether integration exists.

**Appendix E**  
**Freeway Management Information Collection and Dissemination**

Data Collection and Dissemination: Freeway Management  
Agencies for Metropolitan Area: Orlando

Agency Name	Florida Department of Transportation 1999	Florida Department of Transportation 2005
Agency Returned Survey?	Yes	
<b>Freeway Management Section</b>		
<b>Data collected, archived, and/or transferred to another agency</b>		
Collected by your agency	Traffic volumes, Traffic speeds, Lane occupancy, Weather conditions, Incidents, Current work zones, Scheduled work zones, Emergency/evacuation routes and procedures	Vehicle classification
Archived by your agency	Traffic volumes, Traffic speeds, Lane occupancy, Incidents, Current work zones, Scheduled work zones	NR
Transferred to another agency by your agency	Traffic volumes, Traffic speeds, Lane occupancy, Incidents, Emergency/evacuation routes and procedures	NR
<b>Importance of making information available to the public</b>		
Ranked High	Current work zones, Scheduled work zones, Emergency/evacuation routes and procedures	
Ranked Medium	Traffic speeds	
Ranked Low	Traffic volumes, Lane occupancy, Vehicle classification, Weather conditions, Incidents	
<b>Groups that make requests for the data</b>		
<b>What is the data used for?</b>		
<b>Methods used to disseminate freeway information to the public</b>		
Technologies your agency uses to disseminate:	Universities, State DOT personnel	
Technologies your agency (through another agency or org.) uses to disseminate:	Traffic analysis, Planning, Incident detection algorithm development	
<b>Internet web site reporting freeway conditions</b>		
Internet Web site reporting incident information	NR	Internet Web sites
Telephone system for reporting freeway information to the public	NR	Commercial Radio/TV
Organizations your agency sends information for dissemination to the public	Metro Traffic	Internet Web sites
<b>Freeway Incident Management Section</b>		
<b>Methods used to distribute incident location and severity information to the public</b>		
Technologies your agency uses to disseminate:	Local Television Network Affiliates	
Technologies your agency (through another agency or org.) uses to disseminate:		
<b>Internet web site reporting incident information</b>		
Internet Web site reporting incident information	NR	Commercial Radio/TV
Telephone system for reporting incident information to the public	NR	Commercial Radio/TV
Organizations your agency sends information for dissemination to the public	Metro Traffic	Internet Web sites
	Local Television Network Affiliates	

**Appendix F**  
**Arterial Management Components**

Arterial Management  
Agencies for Metropolitan Area: Orlando

		Orange County	Orlando City	Osceola County	Totals	
	1999	2005	1999	2005	1999	2005
Agency Returned Survey?	Yes	Yes	Yes	Yes	3	3
<b>ARTERIAL MANAGEMENT SECTION</b>						
Number of arterial miles that agency owns or maintains	NR	1,023	NR	NR	1,023	
Number of arterial miles that is used for planning	NR	400	NR	NR	400	
Number of highway-rail intersections that agency maintains	NR	44	NR	NR	44	
Number of highway-rail intersections that is used for planning	NR	27	NR	NR	27	
<b>Type of facilities used to conduct arterial management activities</b>						
Activities housed in a free-standing dedicated building?	No	No	No	No	0	
Activities housed in a building shared with other activities?	No	Yes	No	No	1	
Activities conducted in a dedicated control room?	No	Yes	No	No	1	
Control room contains operator console(s)?	No	Yes	No	No	1	
Control room contains electronic wall map?	No	Yes	No	No	1	
Control room contains CCTV display(s)?	No	Yes	No	No	2	
Activities conducted in a room containing workstations or PCs that manage traffic?	Yes	Yes	No	No	0	
Facilities are electronically linked to other transportation mgt facilities?	No	No	No	No	0	
<b>Staffing and hours of operation of arterial management activities</b>						
Number of full-time agency staff members	1	NR	NR	NR	1	
Number of full time contractor staff members	NR	NR	NR	NR	0	
Number of part-time agency staff members	NR	NR	NR	NR	0	
Number of part-time contractor staff members	NR	NR	NR	NR	0	
Staffed 24 hours day by agency staff or by others	NR	agency	NR	NR	0	
Staffed during peak hours only by agency staff or by others	NR	NR	NR	NR	0	
Staffed by others during off-peak hours	No	No	No	No	0	
Agency staff perform transportation management as an ancillary duty	No	No	No	No	0	
Agency staff dedicated to transportation management duty	No	Yes	No	No	1	
<b>Types of operations conducted for arterial management</b>						
Incident detection and management?	No	No	No	No	0	
This metropolitan area?	No	No	No	No	0	
Other metropolitan area?	No	No	No	No	0	
Monitoring and troubleshooting status of system components?	No	Yes	No	No	1	
Radio communications with other agencies?	No	No	No	No	0	
Exchange of electronic data with other agencies such as computer aided dispatch?	No	No	No	No	0	
Manual override of traffic signal timing plans	Yes	Yes	No	No	2	
Operating transportation mgt roadside devices (e.g., VMS, CCTV, etc.)	No	No	No	No	0	
<b>Describe agency's role in traffic signal control</b>	All roads in county outside incorporated area, and roads in another local jurisdiction	All roads in incorporated area, and roads in another local jurisdiction	NR	NR		

Arterial Management  
Agencies for Metropolitan Area: Orlando

		Orange County	Orlando City	Osceola County	1999	2005	1999	2005	1999	2005
<b>Traffic Signals Operated by Agency</b>										
Number of signalized intersections operated and owned by agency	375	450	373	400	NR	NR	748	850		
Number of signalized intersections operated by agency but owned by another	145	180	7	0	NR	NR	152	180		
Total number of signalized intersections operated by agency	230	270	373	400	NR	NR	603	670		
<i>Characteristics of signalized intersections that agency operates</i>										
Under closed loop or central system control	190	225	340	375	NR	NR	530	600		
Under real-time traffic adaptive control using advanced software	0	20	0	50	NR	NR	0	70		
Using SCOOT	No	No	No	No	No	No	0	0		
Using SCATS	No	No	No	No	No	No	0	0		
Name of software	NR	NR	NR	NR	NR	NR	NR	NR		
Allow signal preemption for emergency vehicles	55	70	92	93	NR	NR	147	163		
Allow signal priority for transit vehicles	0	20	0	0	NR	NR	0	20		
Within 200 feet of a highway-rail intersection	0	0	11	12	NR	NR	11	12		
Within 200 feet of a highway-rail intersection that adjust signal timing	0	0	6	12	NR	NR	6	12		
<b>Software used to control the signals agency operates</b>										
Date of last upgrade to traffic signal control system software?	NR	NR	1992	NR	NR	NR				
How often do you update signal timing?	As needed	Yearly	Yearly	NR	NR	NR				
Software used and number of signalized intersections under control (1999, 2005)	Eagle Closed Loop, 180, 225	Undetermined, 0, 400 Peak/Transyt Smartways, 8, 0 EAGLE MARC, 1, 0 UTCSS, 339, 0	NR	NR						
<b>Controllers used to control signals</b>										
NEMA	375	450	373	394	0	0	748	844		
1170/1179	0	0	0	0	0	0	0	0		
2070 controller	0	0	0	6	0	0	0	6		
Other	0	0	0	0	0	0	0	0		
<b>Technologies Associated with Highway-Rail Intersections</b>										
Total number of highway-rail intersections under electronic surveillance	NR	NR	6	12	NR	NR	6	12		
<i>Highway-Rail intersection capabilities</i>										
Video surveillance	0	0	0	0	0	0	0	0		
Electronic surveillance other than video	0	0	6	12	0	0	6	12		
Ability to predict train arrival electronically	0	0	0	0	0	0	0	0		
Equipped with electronic traffic violator devices	0	0	0	0	0	0	0	0		
Other	0	0	0	0	0	0	0	0		
<b>Real-Time Electronic Traffic Data Collection Technologies</b>										
Total number of signalized intersections covered by electronic surveillance	NR	NR	202	350	NR	NR	202	350		
Number of signalized intersections with data collection technologies	0	0	202	300	0	0	202	300		
Loop detectors	0	0	0	50	0	0	0	50		
Video detection cameras	0	0	0	0	0	0	0	0		
Probe readers reading toll tags	0	0	0	0	0	0	0	0		

Arterial Management  
Agencies for Metropolitan Area: Orlando

		Orange County	Orlando City	Osceola County	1999	2005	2005	1999	2005	Totals
		1999	2005		1999	2005	1999	2005	2005	
Probe readers reading license plates		0	0		0	0	0	0	0	0
Other		0	0		0	0	0	0	0	0
<b>Roadside Technologies used to Distribute Traveler Information</b>										
<i>Number deployed</i>										
Highway Advisory Radio	NR	NR	NR		NR	NR	NR	NR	0	0
In-Vehicle Signing (IVS)	NR	NR	NR		NR	NR	NR	NR	0	0
VMS controlling parking access	NR	NR	0		24	NR	NR	NR	0	24
<i>Miles covered</i>										
Highway Advisory Radio	NR	NR	NR		NR	NR	NR	NR	0	0
In-Vehicle Signing (IVS)	NR	NR	NR		NR	NR	NR	NR	0	0
<b>Variable Message Signs (VMS) on Arterials</b>										
Candidate locations for deployment of VMS where VMS has been deployed	NR	NR	NR		NR	NR	NR	NR	0	0
Candidate locations for deployment of VMS	NR	NR	NR		NR	NR	NR	NR	0	0
<b>Communication Technologies</b>										
<i>Signalized intersections communicated with by each type of communication</i>										
Twisted pair cable	110	60	364		250	0	0	0	474	310
Coaxial cable	0	0	0		0	0	0	0	0	0
Fiber-optic cable	35	100	8		150	0	0	0	43	250
Other (e.g., wireless, dial-up modems, leased lines, etc.)	45	65	1		0	0	0	0	46	65
<b>Does agency convey information on highway-rail intersection crossing status to travelers via roadside media such as VMS or HAR?</b>	No	No	No		No	No	No	No	0	0
<b>ITS Standards Used Related to Traffic Signal Control</b>										
Advanced Transportation Controller (ATC) Software Application Interface (ITE 9603-1)	No	No	No		No	No	No	No	0	0
ATC Physical Cabinet Functional Design (ITE-9603-2)	No	No	No		No	No	No	No	0	0
ATC Functionality and Interface Definitions (ITE-9603-3)	No	No	No		No	No	No	No	0	0
Natl. Trans. Communications for ITS Protocol (NTCIP) Class B Profile (AASHTO TS 3.3)	No	No	No		No	No	No	No	0	0
NTCIP Data Collection and Monitoring Devices (AASHTO TS 3.DCM)	No	No	No		No	No	No	No	0	0
NTCIP Object Definitions for Video Camera Control (AASHTO TS 3.VCC)	No	No	No		No	No	No	No	0	0
NTCIP Object Definitions for Actuated Traffic Signal Controller Units (AASHTO TS 3.5)	No	Yes	Yes		No	No	No	No	0	0
Would agency be willing to participate in testing of ITS Standards?										
Have agreements in place with other agencies to use similar hardware and software to aid maintenance and interoperability?	No	Yes	Yes		No	Yes	No	No	1	1
<b>INCIDENT MANAGEMENT ON ARTERIAL STREETS</b>										
Receive information on highway-rail intersection crossing blockages for the purpose of managing incident response?	No	No	No		No	No	No	No	0	0
<b>Use of Service Patrols to Assist in Detection and Response to Incidents</b>										
Publicly operated service patrol vehicles	No	No	No		No	No	No	No	0	0
Privately operated service patrol vehicles operated under public contract	No	No	No		No	No	No	No	0	0
Total number of arterial miles patrolled by these services	NR	NR	NR		NR	NR	NR	NR	0	0
<b>Miles Covered by Methods to Detect and Verify Incidents</b>										
Free cellular phone call to a dedicated phone number other than 911	0	0	0		0	0	0	0	0	0

Arterial Management  
Agencies for Metropolitan Area: Orlando

		Orange County	Orlando City	Osceola County		Totals
	1999	2005	1999	2005	1999	2005
Free cellular phone call to an area radio station	0	0	0	0	0	0
Police patrols	0	0	0	0	0	0
Computer algorithms linked to traffic surveillance equipment	0	0	0	0	0	0
CCTV	0	0	0	0	0	0
Private sector sources (e.g., Shadow Traffic, Smart Routes)	0	0	0	0	0	0
Other	0	0	0	0	0	0
<b>Procedures in place for Arterial Incident Response?</b>						
Working agreement(s)/arrangement(s) with other agencies	No	No	No	No	0	0
Inter-agency incident management admin. team that meets regularly	Yes	Yes	No	No	2	2
Major incident response team that responds to major incidents	No	No	No	No	0	0
Set of goals/objectives for incident mgmt that has been adopted by agencies in region	No	No	No	No	0	0
<b>Methods of Communication Used On-Site at an Incident</b>						
<u>Police</u>						
Two-way radio	No	No	No	No	0	0
800 MHz trunked radio	No	No	No	No	0	0
Cellular telephone	No	No	No	No	0	0
Hand-held (i.e., walkie-talkie)	No	No	No	No	0	0
Automated data systems (i.e., CAD)	No	No	No	No	0	0
Other	No	No	No	No	0	0
<u>Fire</u>						
Two-way radio	No	No	No	No	0	0
800 MHz trunked radio	No	No	No	No	0	0
Cellular telephone	No	No	No	No	0	0
Hand-held (i.e., walkie-talkie)	No	No	No	No	0	0
Automated data systems (i.e., CAD)	No	No	No	No	0	0
Other	No	No	No	No	0	0
<u>DOT</u>						
Two-way radio	No	No	No	No	0	0
800 MHz trunked radio	No	No	No	No	0	0
Cellular telephone	No	No	No	No	0	0
Hand-held (i.e., walkie-talkie)	No	No	No	No	0	0
Automated data systems (i.e., CAD)	No	No	No	No	0	0
Other	No	No	No	No	0	0
<u>Towing</u>						
Two-way radio	No	No	No	No	0	0
800 MHz trunked radio	No	No	No	No	0	0
Cellular telephone	No	No	No	No	0	0
Hand-held (i.e., walkie-talkie)	No	No	No	No	0	0
Automated data systems (i.e., CAD)	No	No	No	No	0	0

Arterial Management  
Agencies for Metropolitan Area: Orlando

		Orange County	2005	1999	Orlando City	Osceola County	2005	1999	2005
Other	No	No		No	No	No	No	0	
<b>Which police agencies typically respond to incidents on arterials?</b>	Yes	Yes		Yes	No	No	2		
State Police	Yes	Yes		Yes	No	No	0		
County Police or Sheriff	No	No		No	No	No	0		
City Police	No	Yes		Yes	No	No	1		
<b>Who provides on-site emergency medical response?</b>									
Fire	Yes	Yes		Yes	No	No	2		
Emergency Management Service Agency	No	No		No	No	No	0		
Private hospital	No	No		No	No	No	0		
<b>Has a multi-agency contact list been developed in area containing the names, phone numbers, etc. for the appropriate response personnel?</b>	Yes	No		No	NR	NR	1		
<b>Is the Incident Command System used to manage incident scenes?</b>	Yes	DK		DK	NR	NR	1		
<b>Is there a legal specification by state law or formal agreement as to who is "in charge" at the incident scene?</b>									
Specified by state law?	No	No		No	No	No	0		
Formal agreement?	No	No		No	No	No	0		
Not specified or don't know?	Yes	Yes		Yes	No	No	2		
<b>On-scene command post used to manage activities of responding agencies?</b>	DK	Yes		Yes	NR	NR	1		
Are there communication linkages to a communications traffic/freeway mgt center?	NR	No		No	NR	NR	0		
<b>Plan developed and adopted by responding agencies for staging and parking response vehicles and equip. at incident site that minimizes lane blockage and facilitates the re-opening of lanes?</b>	No	No		No	NR	NR	0		
<b>Respondents protected through law or court opinion for liability claims for damages to vehicles or cargoes during clearance activities?</b>	DK	DK		DK	NR	NR	0		
<b>Are overturned tank trucks, which are intact and not leaking, uprighted without first off-loading?</b>	NR	No		No	NR	NR	0		
<b>Does your state or local jurisdiction have a law that requires drivers involved in property-damage-only accidents to move the vehicles from travel lanes to a safe location to exchange info and wait for police?</b>	Yes	No		No	NR	NR	1		
<b>Have laws or policies regarding the removal of stalled/abandoned vehicles from freeway shoulders?</b>	NR	No		No	NR	NR	0		
<b>Hours abandoned vehicles are allowed to remain on a freeway shoulder?</b>	NR	>36		>36	NR	NR	0		
<b>Have policies or procedures for quick removal of vehicles?</b>	NR	No		No	NR	NR	0		
<b>Is Total Station equipment used to investigate major incidents?</b>	DK	No		No	NR	NR	0		
<b>Handling of Towing Responses to Incidents</b>									
Formal contract based on qualifications?	No	No		No	No	No	0		
Rotation with companies under contract?	No	Yes		Yes	No	No	1		
Separate lists kept for light and heavy response and for specialty recovery?	NR	No		No	NR	NR	0		
Rotation list with minimal qualifications?	No	No		No	No	No	0		

Arterial Management  
Agencies for Metropolitan Area: Orlando

	Orange County	Orlando City	Osceola County		Totals	
			1999	2005	1999	2005
In towing qualifications, do you require towers to be certified under the Towing and Recovery Ass. of America's National Drivers Cert. Program?						
DK		DK			NR	
					0	
DK: Don't know						
NR: No Response						
Leg: Legislation or action being planned						

**Appendix G**  
**Arterial Management Integration**

Arterial Management Integration  
Agencies for Metropolitan Area: Orlando

Agency Name	1999	Orange County 2005	1999	Orlando City 2005	1999	Osceola County 2005
Agency Returned Survey?	Yes		Yes		Yes	
<b>Arterial Management Section</b>						
<b>Arterial Mgt. agencies in metropolitan area with which you share info.</b>						
Share Timing Plans Information	Orlando City, Seminole County	Seminole County	None listed	Winter Park City	None listed	None listed
Coordinate Changes to Timing Plans	Orlando City, Seminole County	Orlando City, Seminole County	None listed	Maitland City, Orange County, Winter Park City	None listed	None listed
Turn over Control of Signals	None listed	None listed	Orange County	None listed	None listed	None listed
<b>Agencies your agency provides arterial travel times, speeds, and conditions information, share infrastructure or coordinates operation</b>						
<b>Freeway Management Agencies</b>						
Provide Information	None listed	None listed	None listed	None listed	None listed	None listed
Share Infrastructure	None listed	None listed	None listed	Department of Transportation	None listed	None listed
Coordinate Operation	None listed	None listed	None listed	None listed	None listed	None listed
<b>Incident Management Agencies</b>						
Provide Information	None listed	None listed	None listed	None listed	None listed	None listed
Share Infrastructure	None listed	None listed	None listed	Florida Department of Transportation	None listed	None listed
Coordinate Operation	None listed	None listed	None listed	Department of Transportation	None listed	None listed
<b>Public Transit Operators Agencies</b>						
Provide Information	None listed	None listed	None listed	None listed	None listed	None listed
Share Infrastructure	None listed	None listed	None listed	None listed	None listed	None listed
Coordinate Operation	None listed	None listed	None listed	None listed	None listed	None listed
<b>Arterial Management Agencies</b>						
Provide Information	None listed	None listed	None listed	Seminole County	None listed	None listed
Share Infrastructure	None listed	None listed	None listed	Maitland City, Winter Park City	None listed	None listed
Coordinate Operation	None listed	None listed	None listed	None listed	None listed	None listed
<b>Receiving real-time information via electronic means from others</b>						
<b>Freeway Management agencies from which your agency receives freeway travel times, speeds, and conditions</b>						
Florida Department of Transportation	Florida Department of Transportation	Florida Department of Transportation	Florida Department of Transportation	Florida Department of Transportation	None listed	None listed
<b>Public Transit operators from which your agency receives arterial travel times derived from vehicle probes</b>						
None listed	None listed	None listed	None listed	None listed	None listed	None listed

Arterial Management Integration  
Agencies for Metropolitan Area: Orlando

Agency Name	1999	2005	Orange County	1999	2005	Orlando City	1999	2005	Osceola County	2005
<b>Incident Management agencies from which your agency receives incident clearance and/or incident severity, location, and type information</b>										
Receive information on Incident Clearance										
Receive information on Incident Severity, Location, and Type										
<b>Toll Collection agencies from which your agency receives arterial travel times derived from vehicles probes</b>										
<b>Arterial Incident Management Section</b>										
<b>Agencies your agency provides incident severity, location, and type info. and/or shares infrastructure and/or coordinates operation</b>										
<b>Emergency Management Agencies</b>										
Provide Information	None listed	None listed	None listed	None listed	None listed	None listed	None listed	None listed	None listed	None listed
Share Infrastructure										
Coordinate Operation	None listed	None listed	None listed	None listed	None listed	Orlando Police Department, Orlando Fire Department	None listed	None listed	None listed	None listed
<b>Freeway Management Agencies</b>										
Provide Information	None listed	None listed	None listed	None listed	None listed	None listed	None listed	None listed	None listed	None listed
Share Infrastructure										
Coordinate Operation	None listed	None listed	None listed	None listed	None listed	Florida Department of Transportation	None listed	None listed	None listed	None listed
<b>Public Transit Operators</b>										
Provide Information	None listed	None listed	None listed	None listed	None listed	None listed	None listed	None listed	None listed	None listed
Share Infrastructure										
Coordinate Operation	None listed	None listed	None listed	None listed	None listed	None listed	None listed	None listed	None listed	None listed
<b>Receiving real-time information via electronic means from others</b>										
<b>Emergency Management agencies from which your agency receives arterial incident clearance and/or arterial incident severity</b>										
Receive Arterial Incident Clearance Information	None listed	None listed	None listed	None listed	None listed	None listed	None listed	None listed	None listed	None listed
Receive Arterial Incident Severity Information	None listed	None listed	None listed	None listed	None listed	None listed	None listed	None listed	None listed	None listed
<b>Arterial Management agencies from which your agency receives arterial travel times, speeds, and conditions</b>										
Freeway Management agencies from which your agency receives	None listed	None listed	Orlando City	None listed	None listed	Seminole County, Orange County	None listed	None listed	None listed	None listed

Arterial Management Integration  
Agencies for Metropolitan Area: Orlando

Agency Name	Orange County		Orlando City		Osceola County	
	1999	2005	1999	2005	1999	2005
freeway travel times, speeds, and conditions	None listed	None listed	Florida Department of Transportation	None listed	None listed	None listed

\*short survey: Agency responded using a short survey. The survey did not include names of individual agencies, but only identified whether integration exists.

**Appendix H**  
**Arterial Management Information Collection and Dissemination**

Data Collection and Dissemination: Arterial Management  
Agencies for Metropolitan Area: Orlando

Agency Name	Orange County		Orlando City		Osceola County	
	1999	2005	1999	2005	1999	2005
Agency Returned Survey?	Yes	Yes	Yes	Yes	Yes	Yes
Arterial Management Section						
Data collected, archived, and/or transferred to another agency						
Collected by your agency						
	Traffic speeds, Lane occupancy, Turning movements, Phasing/cycle lengths, Emergency vehicle signal preemption, Current work zones, Scheduled work zones					
	Traffic volumes, Turning movements, Phasing/cycle lengths					
Archived by your agency	Turning movements, Phasing/cycle	Turning movements, Phasing/cycle	Turning movements	NR	NR	NR
Transferred to another agency by your agency	NR	NR	zones, Scheduled work zones	NR	NR	NR
Importance of making information available to the public						
Ranked High			Road conditions, Route designations (snow emergency, etc.), Incidents, Current work zones, Scheduled work zones, Emergency/evacuation routes and procedures			
Ranked Medium	Turning movements, Phasing/cycle lengths	Turning movements, Phasing/cycle lengths, Weather conditions, Intermodal (air, rail, water) connections	Turning movements, Phasing/cycle lengths, Weather conditions, Intermodal (air, rail, water) connections	NR	NR	NR

Data Collection and Dissemination: Arterial Management  
Agencies for Metropolitan Area: Orlando

Agency Name Ranked Low	Orange County		Orlando City		Osceola County	
	1999	2005	1999	2005	1999	2005
<b>Groups that make requests for the data</b>						
NR						
<b>Consultants</b>						
NR						
<b>What is the data used for?</b>						
Traffic analysis, Planning, Roadway impact analysis			Traffic analysis, Construction impact determination, Planning, Roadway impact analysis		NR	
NR			NR		NR	
<b>Methods used to disseminate arterial information to the public</b>						
Technologies your agency uses to disseminate:	NR	NR	NR		Internet Web sites	NR
Technologies your agency (through another agency or org.) uses to disseminate:	NR	NR	NR		NR	NR
<b>Internet web site reporting arterial conditions</b>						
NR			NR		NR	
<b>Telephone system for reporting arterial information to the public</b>						
NR			NR		NR	
<b>Organizations your agency sends information for dissemination to the public</b>						
NR			NR		NR	
<b>Arterial Incident Management Section</b>						
NR			NR		NR	
<b>Methods used to distribute incident location and severity information to the public</b>						
Technologies your agency uses to disseminate:	NR	NR	NR		NR	NR
Technologies your agency (through another agency or org.) uses to disseminate:	NR	NR	NR		NR	NR
<b>Internet web site reporting incident information</b>						
NR			NR		NR	
<b>Telephone system for reporting incident information to the public</b>						
NR			NR		NR	
<b>Organizations your agency sends information for dissemination to the public</b>						
NR			NR		NR	

**Appendix I**  
**Transit Management Components**

Transit Management  
Agencies for Metropolitan Area: Orlando

	LYNX Central Florida Regional Transit Authority	2005
Agency Returned Survey?	1999	Yes
Number of vehicles used in revenue service		
Fixed Route Bus	NR	NR
Heavy or Rapid Rail	NR	NR
Light Rail	NR	NR
Demand Responsive	NR	NR
Commuter Rail	NR	NR
Ferry Boat	NR	NR
Have a plan to have an Automated Vehicle Location System?	No	
Primary and Secondary Location Technologies Used		
Primary Technologies		
GPS	No	No
Sign/Odometer	No	No
Dead-Reckoning	No	No
LORAN C	No	No
Other	No	No
Backup Technologies		
GPS	No	No
Sign/Odometer	No	No
Dead-Reckoning	No	No
LORAN C	No	No
Other	No	No
Number of Vehicles Equipped with AVL		
Fixed Route Bus	NR	NR
Heavy or Rapid Rail	NR	NR
Light Rail	NR	NR
Demand Responsive	NR	NR
Commuter Rail	NR	NR
Ferry Boat	NR	NR
Motor Buses Operated as Vehicle Probes		
Number of Motor Buses equipped as probes on freeways?	NR	
Number of Motor Buses equipped as probes on arterials?	NR	
Have Organized Regional Incident Management Program?	No	
Have Automated Traveler Information System?	No	
Services Automated Traveler Info. System Applies:		

Transit Management  
Agencies for Metropolitan Area: Orlando

	LYNX Central Florida Regional Transit Authority	
	<b>1999</b>	<b>2005</b>
Fixed Route	No	
Heavy Rail	No	
Light Rail	No	
Demand Responsive	No	
Commuter Rail	No	
Ferry	No	
<b>Locations where traveler information is displayed to public</b>		
Number of bus stops on fixed transit routes	NR	NR
Bus stops on fixed transit routes that display traveler info to the public	NR	NR
Number of rail stations	NR	NR
Number of rail stations that display traveler information	NR	NR
Number of other locations that display traveler information to public	NR	NR
<b>Number of vehicles the traveler information system has available</b>		
Fixed Route Bus	NR	NR
Heavy or Rapid Rail	NR	NR
Light Rail	NR	NR
Demand Responsive	NR	NR
Commuter Rail	NR	NR
Ferry Boat	NR	NR
<b>Deployment of Communications Technology</b>		
<i>Attributes of Radio System:</i>		
Digital?	No	
Analog?	No	
Trunked?	No	
Regular?	No	
<b>Services that use a Digital or Trunked Radio System</b>		
<i>Digital Only</i>		
Fixed Route Bus	No	No
Heavy or Rapid Rail	No	No
Light Rail	No	No
Demand Responsive	No	No
Commuter Rail	No	No
Ferry Boat	No	No
<i>Trunked Only</i>		
Fixed Route Bus	No	No
Heavy or Rapid Rail	No	No
Light Rail	No	No
Demand Responsive	No	No

Transit Management  
Agencies for Metropolitan Area: Orlando

	LYNX Central Florida Regional Transit Authority	1999	2005
Commuter Rail	No	No	No
Ferry Boat	No	No	No
<b>Have of plan to have Automatic Passenger Counters (APCs)?</b>	No		
<b>Methods used to count passengers</b>			
Treadle Mats	No		
Infrared Beams	No		
<b>Primary and Secondary Location Technologies Used</b>			
<i>Primary Technologies</i>			
GPS	No	No	No
Differential GPS	No	No	No
Signpost/Odometer	No	No	No
Dead_Reckoning	No	No	No
LORANC	No	No	No
Other	No	No	No
<i>Backup Technologies</i>			
GPS	No	No	No
Differential GPS	No	No	No
Signpost/Odometer	No	No	No
Dead_Reckoning	No	No	No
LORANC	No	No	No
Other	No	No	No
<b>Number of Vehicles with APCs</b>			
Fixed Route Bus	NR	NR	NR
Heavy or Rapid Rail	NR	NR	NR
Light Rail	NR	NR	NR
Demand Responsive	NR	NR	NR
Commuter Rail	NR	NR	NR
Ferry Boat	NR	NR	NR
<b>Remote Real-Time Monitoring and Computer Assisted Dispatching</b>			
<i>Remote Real-Time Monitoring</i>			
Fixed Route Bus	NR	NR	NR
Heavy or Rapid Rail	NR	NR	NR
Light Rail	NR	NR	NR
Demand Responsive	NR	NR	NR
Commuter Rail	NR	NR	NR
Ferry Boat	NR	NR	NR
<i>Automated Dispatching or Control Software</i>			
Fixed Route Bus	NR	NR	NR

Transit Management  
Agencies for Metropolitan Area: Orlando

	LYNX Central Florida Regional Transit Authority	1999	2005
Heavy or Rapid Rail	NR	NR	NR
Light Rail	NR	NR	NR
Demand Responsive	NR	NR	NR
Commuter Rail	NR	NR	NR
Ferry Boat	NR	NR	NR
<b>Coordinate or plan to coordinate travel request and vehicle dispatching for multiple agencies?</b>	NR		
<b>Is there or will there be a Transportation Management Center (TMC) in the region that controls transit and highway modes?</b>	NR		
Modes that TMC currently controls:			
Highways	No	No	No
Fixed Route Bus	No	No	No
Heavy or Rapid Rail	No	No	No
Light Rail	No	No	No
Demand Responsive	No	No	No
Commuter Rail	No	No	No
Ferry Boat	No	No	No
Other	No	No	No
<b>Priority at Traffic Signals and Ramp Meter Priority</b>			
<i>Priority at Traffic Signals</i>			
Fixed Route Bus	NR	NR	NR
Light Rail	NR	NR	NR
Demand Responsive	NR	NR	NR
<i>Ramp Meter Priority</i>			
Fixed Route Bus	NR	NR	NR
Demand Responsive	NR	NR	NR
<b>Number of Vehicles Equipped with Navigation Aids</b>			
Fixed Route Bus	NR	NR	NR
Heavy or Rapid Rail	NR	NR	NR
Light Rail	NR	NR	NR
Demand Responsive	NR	NR	NR
Commuter Rail	NR	NR	NR
Ferry Boat	NR	NR	NR
<b>ITS Standards Used Related to Transit Management</b>			
TCIP On Board Objects (TCIP-OB)	No		
TCIP Traffic Management Objects (TCIP-TM)	No		
TCIP Common Public Transportation Objects (TCIP-CPT)	No		

Transit Management  
Agencies for Metropolitan Area: Orlando

		LYNX Central Florida Regional Transit Authority	1999	2005
TCIP Passenger Information Objects (TCIP-P)	No			
TCIP Incident Management Objects (TCIP-IM)	No			
TCIP Fare Collection Objects (TCIP-FC)	No			
TCIP Spatial Representation Objects (TCIP-SP)	No			
TCIP Control Center Objects (TCIP-CC)	No			
TCIP Scheduling/Routing Objects (TCIP-SCH)	No			
Send data communication between micro computer and heavy duty vehicle applications (SAE J1708)	No			
Would agency be willing to participate in testing of ITS Standards?	NR			
Have agreements in place with other agencies to use similar hardware and software to aid maintenance and interoperability?	NR			
<b>Electronic Fare Payment</b>				
<b>Have full operational Electronic Fare Payment System?</b>	No			
Methods of Fare Payment				
Stored value card with fare deducted for each trip	No			
Magnetic Stripe	No			
Smart Card	No			
Debit Card	No			
Billed by the month for trips taken				
Magnetic Stripe	No			
Smart Card	No			
Credit Card	No			
Monthly Pass	No			
Magnetic Stripe	No			
Smart Card	No			
Vehicles/Stations Equipped with Automated Payment Mechanism				
Magnetic Stripe Readers				
Fixed Route Bus Vehicles	NR			NR
Heavy or Rapid Rail Stations	NR			NR
Light Rail Stations	NR			NR
Demand Responsive Vehicles	NR			NR
Commuter Rail Stations	NR			NR
Ferry Boat Landings	NR			NR
Smart Card Readers				
Fixed Route Bus Vehicles	NR			NR
Heavy or Rapid Rail Stations	NR			NR
Light Rail Stations	NR			NR
Demand Responsive Vehicles	NR			NR
Commuter Rail Stations	NR			NR

**Transit Management  
Agencies for Metropolitan Area: Orlando**

	<b>1999</b>	<b>2005</b>
Ferry Boat Landings	NR	NR
<i>Credit Card</i>		
Fixed Route Bus Vehicles	NR	NR
Heavy or Rapid Rail Stations	NR	NR
Light Rail Stations	NR	NR
Demand Responsive Vehicles	NR	NR
Commuter Rail Stations	NR	NR
Ferry Boat Landings	NR	NR
<i>Debit Card</i>		
Fixed Route Bus Vehicles	NR	NR
Heavy or Rapid Rail Stations	NR	NR
Light Rail Stations	NR	NR
Demand Responsive Vehicles	NR	NR
Commuter Rail Stations	NR	NR
Ferry Boat Landings	NR	NR

NR: No Response

**Appendix J**  
**Transit Management Integration**

Transit Management Integration  
Agencies for Metropolitan Area: Orlando

Agency Name	LYNX Central Florida Regional Transit Authority <b>1999</b>	LYNX Central Florida Regional Transit Authority <b>2005</b>
Agency Returned Survey?		
<b>Transit operators in the region that use the same electronic payment system</b>	Yes	
Toll operators from whom you accept electronic payment of transit fare through the use of ETC media	None listed	
Receiving real-time information via electronic means from others	None listed	
<i>Freeway Management agencies from which your agency receives freeway travel times, speeds, and conditions</i>	None listed	None listed
Receive Information	None listed	None listed
Share Infrastructure	None listed	None listed
<i>Arterial Management agencies from which your agency receives arterial travel times, speeds, and conditions</i>	None listed	None listed
Receive Information	None listed	None listed
Share Infrastructure	None listed	None listed
<i>Incident Management agencies from which your agency receives incident severity, location, and type</i>	None listed	None listed
Receive Information	None listed	None listed
Share Infrastructure	None listed	None listed

**Appendix K**  
**Transit Management Information Collection and Dissemination**

Data Collection and Dissemination: Transit Management  
Agencies for Metropolitan Area: Orlando

	LYNX Central Florida Regional Transit Authority <b>1999</b>	LYNX Central Florida Regional Transit Authority <b>2005</b>
Agency Name		
Agency Returned Survey?	Yes	
<b>Methods used to disseminate transit information to the public</b>		
<b>Technologies your agency uses to disseminate:</b>		
Transit routes, schedules and fares	NR	NR
Real-time transit schedule adherence or arrival and departure times	NR	NR
<b>Technologies employed by other organization receiving your data</b>		
Transit routes, schedules and fares	NR	NR
Real-time transit schedule adherence or arrival and departure times	NR	NR
Internet web site reporting transit routes, schedules and fare, etc.	NR	NR
Telephone system for reporting transit information to the public	NR	NR
<b>Organization your agency sends information for dissemination to the public</b>		
<b>Data collected, archived, and/or transferred to another agency</b>		
Collected by your agency	NR	NR
Archived by your agency	NR	NR
Transferred to another agency by your agency	NR	NR
<b>Importance of making information available to the public</b>		
Ranked High	NR	
Ranked Medium	NR	
Ranked Low	NR	
<b>Groups that make requests for the data</b>		
<b>What is the data used for?</b>		NR

**Appendix L**  
**Emergency Management**

Emergency Management Agencies for Metropolitan Area: Orlando

Agency Name	Total Vehicles	Navigation Capabilities	AVL	CAD	CAD Equipped with Mobile Data Terminal		Vehicles Equipped with Preemption	Participate in Formal Incident Mgt Program	Send incident info to other agencies	List of agencies receiving data
					1999	2005	1999	2005	1999	
Orange County Sheriff's Office	1,426	1,630	0	0	0	500	NR	NR	NR	None listed
Orlando Fire Department	59	70	0	70	0	70	59	70	NR	None listed
Orlando Police Department	339	NR	0	40	0	40	0	40	0	None listed
Osceola County Sheriff's Department	125	225	0	0	0	0	NR	NR	1	Yes
Seminole County Sheriff's Department	337	402	0	NR	NR	366	430	337	402	No
										None listed

**Appendix M**  
**Electronic Toll Collection**

Electronic Toll Collection  
Agencies for Metropolitan Area: Orlando

		Florida Department of Transportation-Florida Turnpike	Orlando Orange County Expressway Authority/Bee Line Expressway	Orlando Orange County Expressway Authority/East-West Expressway
	1999	2005	1999	2005
Agency Returned Survey?	Yes	Yes	Yes	Yes
<b>Number of toll Collection Plazas operated</b>	75	92	0	0
<b>Number of toll collection plazas with dedicated ETC</b>	21	92	0	0
<b>Number of toll collection plazas with both manual and ETC</b>	21	92	0	0
<b>Number of toll collection lanes operated</b>	875	975	24	74
<b>Number of toll collection lanes with dedicated ETC</b>	12	170	4	19
<b>Number of toll collection lanes with both manual and ETC</b>	78	515	20	55
<b>Number of toll collection tags issued</b>	18,000	400,000	195,855	392,000
<b>Antennae Location Technologies</b>				
In-Pavement?	No	Yes	Yes	Yes
Focused Beam?	No	No	No	No
Distributed Overhead?	Yes	No	No	No
<b>In-Vehicle Equipment Technologies</b>				
Tag-based?	Yes	Yes	Yes	Yes
Integrated circuit card-based?	No	No	No	No
<b>Are toll tags used by other toll operations in metro area?</b>	Yes	Yes	Yes	Yes
Miami-Dade Expressway, Tampa Expressway, Midbay Bridge Authority, Santa Rosa Bay Bridge Authority, Orlando-Orange County Expressway				
Osceola Parkway, Florida Department of Transportation				
Florida Department of Transportation, Osceola Parkway				
<b>Are toll tags used by operators of public transit to pay transit fares in metro area?</b>	No	No	No	No
List of toll operators that use tags	None	None	None	None
NR: No Response				

Electronic Toll Collection  
Agencies for Metropolitan Area: Orlando

	Orlando Orange County Expressway Authority/Greenway Expressway		Totals	
	1999	2005	1999	2005
Agency Returned Survey?	Yes		4	
<b>Number of toll Collection Plazas operated</b>	10	10	85	102
<b>Number of toll collection plazas with dedicated ETC</b>	10	10	31	102
<b>Number of toll collection plazas with both manual and ETC</b>	10	10	31	102
<b>Number of toll collection lanes operated</b>	75	75	1048	1148
<b>Number of toll collection lanes with dedicated ETC</b>	12	22	47	215
<b>Number of toll collection lanes with both manual and ETC</b>	63	53	216	643
<b>Number of toll collection tags issued</b>	195,855	392,000	605,565	1,576,000
<b>Antennae Location Technologies</b>				
In-Pavement?	Yes		3	
Focused Beam?	No		0	
Distributed Overhead?	No		1	
<b>In-Vehicle Equipment Technologies</b>				
Tag-based?	Yes		4	
Integrated circuit card-based?	No		0	
<b>Are toll tags used by other toll operations in metro area?</b>	Yes		4	
Osceola Parkway, Florida Department of Transportation				
List of toll operators that use tags				
<b>Are toll tags used by operators of public transit to pay transit fares in metro area?</b>	No		0	
List of transit operators that use tags	None		None	
NR: No Response				

